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ABSTRACT

In 1967, El Salvador initiated a comprehensive educational reform centering around the use of instructional television (ITV) in grades 7, 8, and 9. Other aspects of the Reform included extensive teacher retraining, curriculum revision, and extensive building of new schoolrooms, among other things. The cost of the reform through 1973 will total roughly $30 million, of which about $7.3 million will pay for ITV. Tests show that students in Reform classrooms learned about 20% more (as measured by end-of-year tests) than did those in non-Reform classrooms. However, classes with all aspects of the Reform (including ITV) evidenced only slightly higher learning gains than did classes with all aspects of the Reform except ITV. Thus the role of ITV in improving achievement is inconclusive. Students hold highly positive attitudes towards the use of ITV in their classrooms, although they were slightly less enthusiastic in 1971 than they had been in 1969. (JK)

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Instructional Television in the Educational Reform of El Salvador

Wilbur Schramm

This report has been prepared with the aid of Richard E. Speagle, Professor of Finance, Drexel University; Emile G. McAnany, John K. Mayo, Judith A. Mayo, Robert C. Hornik, and Henry T. Ingle, Staff Associates, Institute for Communication Research, Stanford University; and Walter M. Haney, Research Assistant, Academy for Educational Development.

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March, 1973

INSTRUCTIONAL TELEVISION IN THE EDUCATIONAL REFORM OF EL SALVADOR

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EL SALVADOR

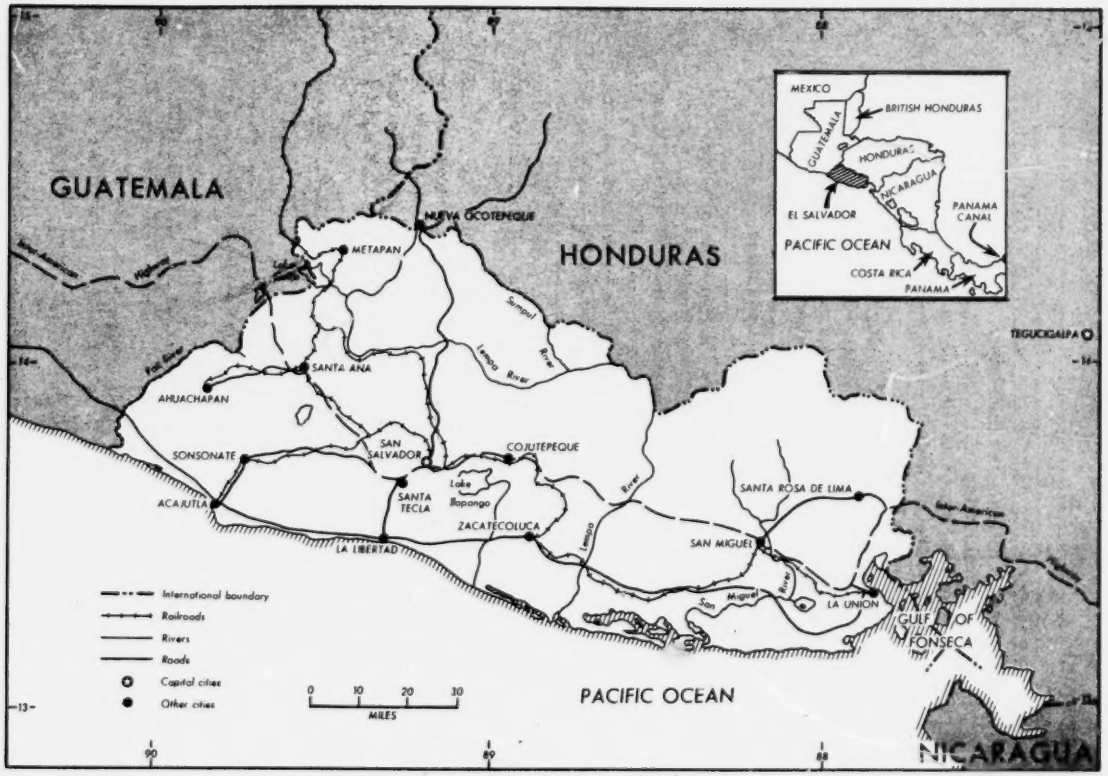

Figure 1. El Salvador

TABLE OF CONTENTS

INSTRUCTIONAL TELEVISION IN THE EDUCATIONAL REFORM OF EL SALVADOR

		Page
I.	Summary	1
II.	Background	10
	A. El Salvador	
	B. Education in El Salvador	
III.	Educational Reform in El Salvador	12
	A. Genesis of the Reform	
	B. Features of the Reform	
	1. Ministry of Education Reorganization	
	2. Teacher Training	
	3. Curriculum Reform	
	4. New Study Materials	
	5. Supervision	
	6. Feedback/Evaluation	
	7. Building Facilities	
	8. Television	
IV.	Instructional Television	25
	A. Development	
	B. Administration	
	C. Program Production	
V.	Costs of ITV and the Reform	31
	A. Costs of the Reform	
	B. Costs of ITV	
	C. Financing the Reform	

(Continued)

Page

VI. Benefits of the Reform 40

A. Learning

B. ITV's Contribution

C. The New Classroom

D. Equalization of Learning Opportunities

E. Dropouts and Promotions

F. Costs and Benefits

VII. Aspirations and Attitudes Towards Reform/ITV .. 54

A. Students

B. Teachers

C. Parents

VIII. The Future of ITV in El Salvador 69

IX. The El Salvador Experience and ITV Elsewhere in the World 71

X. Tentative Conclusions from the El Salvador Experience 74

Appendices

A. Chronology of Educational Reform in El Salvador 84

B. Bibliography on the Educational Reform in El Salvador 88

I. SUMMARY

A. Background

El Salvador, like most developing countries, faces difficult problems in the expansion and improvement of its educational system. While most children in El Salvador do start school, many drop out after a short time, and enrollment at the secondary level is greatly constricted. For this reason and because more than seventy-five percent of the nation's secondary school teachers had not received adequate training, El Salvador's leaders selected their junior high school level schools (seventh, eighth, and ninth grades, which since 1971 have been called the Third Cycle of El Salvador Basic Education) as the initial focus for a systematic reform of their whole educational system.

For more than ten years El Salvador officials have expressed interest in the potential use of instructional television (ITV) in their country. In 1963 they established a special commission to assess ITV's potential for El Salvador education. After feasibility studies by the Japanese National Broadcasting Company, UNESCO, the World Bank and the U.S. Agency for International Development, and a pilot ITV program in 1967, El Salvador decided to initiate a comprehensive educational reform centered around the use of ITV in the Third Cycle of Basic Education. In the spring of 1968, El Salvador signed an agreement with the U. S. government under which the latter contributed more than one-half million dollars toward the start-up costs of the ITV system.

B. The Reform

Although ITV has been its most widely publicized aspect, the educational reform in El Salvador was conducted system-wide and encompasses many varied facets. These include:

1. Reorganization of the Ministry of Education.
2. Extensive teacher retraining.
3. Curriculum revision.
4. Development of new study materials.
5. Modernization of the system of teacher supervision.
6. Continuing feedback and evaluation of reform programs.
7. Extensive building of new schoolrooms.
8. Eliminating tuition in grades 7, 8, and 9 (in 1971).
9. Using double sessions and reduced hours to teach more pupils.
10. A new student evaluation system incorporating changes in promotion and grading policies.

C. Instructional Television

Under the direction of a Division of Educational Television within the Ministry of Education, ITV program production began in late September 1968. Each program was planned and carried out by a production team of five people. Part of each team was also responsible for producing teachers' guides and student workbooks to accompany the telelessons.

In February 1969 the first ITV broadcasts began in 32 pilot seventh grade classes. In 1970 programming was extended to 219 seventh grade

classes and pilot programs were broadcast to the original 32 classes then in the eighth grade. In 1971, programming moved into the ninth grade so that in 1972 ITV programming was beamed to a total of 1,179 seventh, eighth, and ninth grade classes in 263 schools. In 1973 televised instruction will be introduced into the fourth grade, and in the next two years into the fifth and sixth grades.

D. Costs

The costs of the educational Reform through 1973 will total roughly $30 million. Of this amount approximately $7.3 million will pay for ITV. Over fifty percent of these ITV costs have been paid for directly by the government of El Salvador. Another thirty percent will be covered by the Salvadoran government in the form of loans. The remaining twenty percent of the ITV costs have been paid in the form of foreign grants and donations, mainly from the United States. The annual cost of ITV per student viewer fell from $164 in 1969 to an estimated $13.20 in 1972. This works out to approximately 8.2¢ per student per hour of ITV viewed. The per student hourly operating cost of Third Cycle education without television is 11¢.

However, the lower ITV cost does not represent an absolute saving, because it is an add-on cost. ITV is used in addition to the classroom teacher, not in place of him.

In other situations such as teacher training or adult education, where it can be used instead of a regular instructor, ITV may afford real

savings over alternative methods of instruction. But in the regular classroom ITV is clearly an add-on cost. As such it is relevant to ask whether ITV is worth 8¢ per hour.

E. Benefits of the Reform

Evidence from 1969 shows clearly that the Reform program with new curriculum, television, retrained teachers, new classroom materials and new supervision resulted in better student learning than did the old system without any of these new components. On the average new system students scored 20% higher on year-end exams than did control classes. Researchers also examined the effect of ITV alone. This evaluation was inconclusive, however. Classes with all elements of the Reform, including ITV, evidenced only slightly higher (statistically insignificant) learning gains than did classes with all elements of the Reform except ITV.

In 1970 and 1971 the comparisons were less clear-cut than in 1969, because some elements of the Reform diffused out into the whole system in 1970. Also, evaluations were hindered by test scheduling problems in 1970 and by a two-month teachers' strike in 1971. Nevertheless, both seventh and eighth grade Reform classes with ITV did better in 1970 than traditional classes and Reform classes without ITV, and in 1971 there was an advantage to the Reform ITV classes in the seventh grade but no difference in the eighth or ninth.

In 1970 researchers conducted a study of classroom interaction in a small sample of Reform and non-Reform classrooms. They found that the

Reform had clearly helped to introduce modern pedagogy into El Salvador's classrooms. The evaluators found that:

- Reform teachers dictated lessons to their classes only one-seventh as much as non-Reform teachers.
- Reform teachers asked more questions of their students and particularly more thought questions.
- Students in Reform classes asked more questions than did their fellow students in non-Reform classes.
- Reform teachers used more audio-visual aids than did non-Reform teachers.

In addition, there is tentative evidence that the ITV Reform program has contributed to greater equalization of learning gains than was evident in non-Reform classes. For example, under ITV/Reform learning gains in rural classes appear to be more nearly equal to those of urban classes than are the gains for rural classes under the traditional system of learning. Also, the Reform seems to have had a salutary effect on dropout and promotion rates. These tentative conclusions will be examined in more depth by the Stanford University research team in the final 1973 evaluation of the ITV Reform project.

Given these benefits, it appears that the ITV Reform Program has been cost-effective. However, because it is impossible to determine exactly

which Reform costs should be debited to the Third Cycle grades and which costs to other grades it is also impossible to give a definitive answer to the question of the Reform's cost-effectiveness.

F. Aspirations and Attitudes Towards Reform ITV

Studies have shown that Salvadoran students hold highly positive attitudes towards the use of ITV in their classrooms. While there evidently has been some diminution in their enthusiasm since 1969, they remained in 1971 decidedly favorable in their opinions towards classroom TV.

Evaluations of Third Cycle students' aspirations for both jobs and further education show that they aspire to levels of learning and occupations far advanced from those of their parents. There is no definite evidence that the Reform has been solely or even chiefly responsible for inflating these aspirations, but they are so high that they may well cause problems in the future. So many students hold such high hopes for both jobs and advanced learning that large numbers of them will inevitably be unable to fulfill their aspirations.

Since the start of the Reform, teachers also have shown generally favorable attitudes towards ITV. However, they do perceive that instructional television has important limitations. For example, 65% of the teachers questioned in 1971 agreed that a serious obstacle to learning with television is that students can't ask questions until the programs are over. Data in 1971 also indicated a decline in teacher satisfaction with ITV in a number of areas. It seems likely, however, that some of this decline

came from a "spillover effect" of general teacher dissatisfaction which accompanied the 1971 teachers' strike. Evaluation at the end of 1972 should provide a clearer picture of teacher attitudes towards ITV.

An evaluation of parents' attitudes shows that a majority of the parents of Third Cycle students remain unaware of the educational Reform. Still fewer have knowledge of ITV's role in the Third Cycle classrooms. However, when the idea of instructional television was explained to them, most parents reacted favorably to it.

G. The Future of ITV in El Salvador

In 1972 Salvador concentrated on improving the quality of ITV and the use of behavioral objectives in Third Cycle classrooms. For the future a variety of uses for ITV are planned. These include:

1. a pilot program of classroom broadcasts for the Second Cycle of El Salvador's Basic Education, beginning with the fourth grade;
2. expanded training and retraining of teachers at all levels, and
3. adult, nonformal education on an experimental basis.

H. The El Salvador Experience and ITV Elsewhere in the World

There have been three other major ITV projects in developing countries -- in Colombia, American Samoa, and Niger. These projects have ranged greatly in size. Colombia's ITV project has an audience estimated at 400,000. In contrast, Niger's ITV programs have never reached an

audience of more than 800 students.

Salvador's project differs from those in the other nations in a number of respects. For example, Salvador has relied on foreign experts to a smaller extent than have the other three countries. Also, Salvador has followed a more systematic and graduated program of expansion in its use of ITV.

I. Tentative Conclusions from the El Salvador Experience

In comparing ITV in El Salvador with its use elsewhere, a variety of tentative conclusions may be drawn. These include:

1. The importance of national initiative and strong leadership.
2. The necessity of system-wide coordinated change.
3. The importance of coordinated effort through bureaucratic teamwork.
4. The advantages and drawbacks of relying on national rather than foreign T.V. production teams.
5. The difficulties in producing high-quality television.
6. The "system" concept's contribution to effective change.
7. The value of graduated expansion of ITV programming.
8. The probability of unforeseen delays in plan schedules.
9. The importance of drawing classroom teachers fully into the processes of planning and implementing new programs using instructional technology.

10. The need for foreign assistance in light of the tremendous training effort involved in establishing ITV broadcasting for the first time.

II. BACKGROUND

With an area of only 8,260 square miles, El Salvador is territorially the smallest mainland country in Latin America. To the northwest this small country is bounded by Guatemala, to the northeast by Honduras, to the southeast by the Gulf of Fonseca and to the southwest by an 160 mile Pacific coastline. Though small in area, El Salvador has a population of nearly 3.5 millions, making it the most densely populated mainland country in the Western Hemisphere. Thus, it presents an almost ideal setting for the use of television: densely populated, almost universally Spanish-speaking and small enough in size to be covered easily by a few television stations.

El Salvador has been an independent republic with its own constitution since 1841. Its chief of state is a president who serves a single term of five years and is not permitted to succeed himself. It has a unicameral legislature and 14 departments of national government. Approximately 60 percent of the people work in agriculture. The literacy rate is estimated at about 50 percent. Large families are characteristic of the population, and most Salvadorans are Catholics.

The El Salvador educational pyramid is a steep one. The laws provide that all children through the ninth grades must attend school although in actuality most drop out after a few years. The present enrollment in the First and Second Cycles of Basic Education (the first six years) is approximately 540,000, or 70 percent of the eligible school-age population,

although many drop out after the first year, and as few as 20 percent may be in school at the end of the sixth grade. Enrollment in the Third Cycle of Basic Education (seventh, eighth, and ninth grades, corresponding to junior high school) is about 65,000; in higher secondary or Bachillerato (two or three years following Basic Education), about 12,000; in vocational courses or Carrera Corta (two or three years, parallel to higher secondary), about 28,000; and in universities, about 7,500. In recent years the Ministry of Education budget has consumed roughly one quarter of the Salvadoran national budget.*

Yet despite this large proportion of public expenditures going for education, only one in six of the children who enter primary school goes as far as the seventh grade, and almost half of those who do enter the seventh grade are not in public schools. This bottleneck in the educational system is one of the reasons why El Salvador chose to begin its educational reform with the Third Cycle of Basic Education rather than lower grades.

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* By way of comparison, Ecuador spent roughly 17 percent of its overall public expenditure on public education in 1965. The comparable figure for fifteen Asian member countries of UNESCO in 1964 averaged 14.66 percent. (P. Coombs and J. Hallak, Managing Educational Costs, New York: Oxford University Press, 1972, pp. 26, 91).

III. EDUCATIONAL REFORM IN EL SALVADOR

A. Genesis of the Reform

For more than a decade the leaders of El Salvador, and especially those involved in planning for its economic and social development, have been concerned over the high rate of illiteracy in the country, the lack of adequate school facilities, the high proportion of dropouts and repeaters in primary school, and the scarcity of persons educated to the level of technical and managerial jobs. As far back as 1960, Salvadoran leaders were discussing the possibility of using some form of instructional television to help remedy these problems. One of the first concrete steps toward ITV was taken by Lic. Walter Beneke, who was later appointed Minister of Education but in 1961 was El Salvador's Ambassador to Japan. Impressed by the Japanese use of television for education, he asked NHK (Nippon Hoso Kyokai, the Japan Broadcasting Corportion) to conduct a feasibility study of the possibilities for ITV in El Salvador. This study was made in 1962. The Japanese, addressing themselves mainly to technological questions, confirmed that the Salvadoran setting was highly favorable for national distribution of television, and recommended a national undertaking requiring an investment in capital equipment that at the time seemed unrealistic to the El Salvador government.

Nevertheless, in 1963 President Rivera established an educational television commission. This body met sporadically and agreed on the potential usefulness of ITV, but took few concrete actions except to send a group of young men to Japan for technical training. When they returned, they found

no television system to employ them and were forced to seek other jobs. A department of educational television was created in the Ministry of Education in 1964, but it lacked leadership and budget, and reflected the generally low priority given ITV at that time by the Ministry.

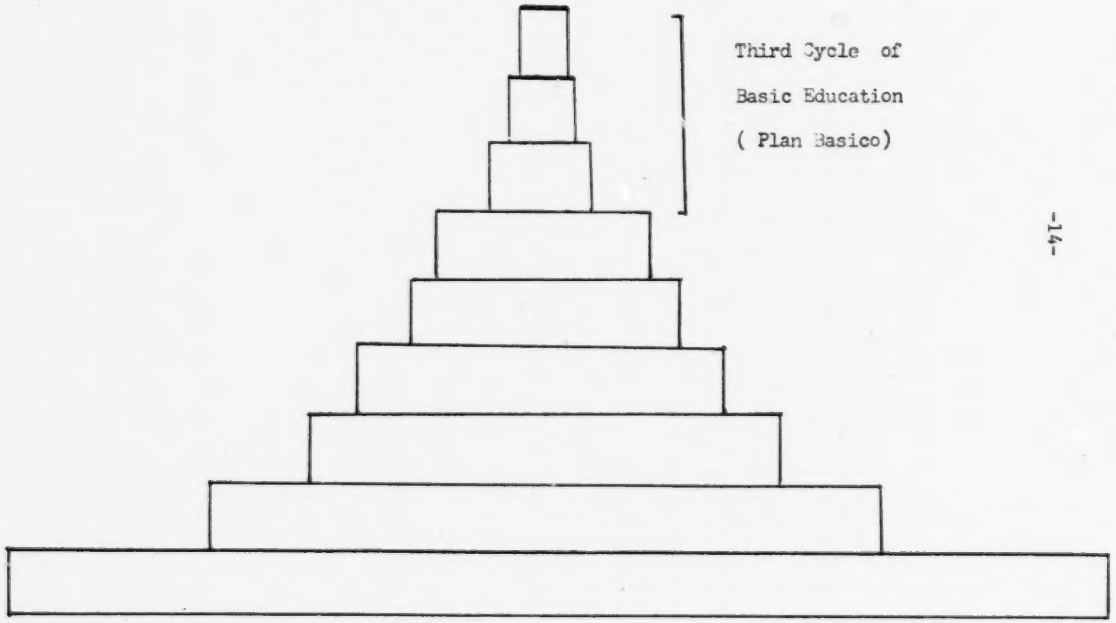
Early in 1966, however, the work of the ITV Commission was revitalized, in particular by the appointment of Lic. Beneke as chairman when he returned from his ambassadorship, and by several other key appointments to the committee. Under Beneke's chairmanship, the commission began to meet weekly and to consider possible applications of instructional television, as well as how and where to introduce television and how to pay for it. After a statistical study of the school system and a survey of the opinions of educators, the commission decided that the Third Cycle of Basic Education (then called Plan Basico) represented the chief bottleneck both to educational development and to the preparation of trained technical personnel for national economic development. This bottleneck is evident in the El Salvadoran education pyramid shown in Figure I.

The commission recommended that the use of instructional television should begin with the Third Cycle of Basic Education. At that time it was thought that ITV should be organized under an autonomous semi-public institute. It was decided to try to make a small beginning, but even this represented serious financial problems, and consequently, the commission began to look around for help with training and financing.

In the fall of 1966, a UNESCO team conducted a four-week training

Figure I: Educational Pyramid in El Salvador, 1967

Grade	Enrollment (in thousands)
9	8.5
8	10.4
7	13.8
6	31.3
5	39.6
4	54.0
3	69.9
2	99.8
1	158.5



Source: Estimados de la Matricula Diurna en Educacion Primaria y Secundaria 1968-1975 y las Necesidades de Aulas y Profesores de Educacion Primaria, 1968-1975. CONAPLAN, San Salvador, April, 1968.

course in television for 40 selected teachers, seven of whom were hired, following the course, as a nucleus of the ITV staff. ILCE (Instituto Latino Americano de Communicación Educativa) of Mexico also offered a training course to a limited group. Discussions within the commission and with the training advisers helped at this time to broaden the concept of what was needed in the Salvadoran schools -- not merely television, but among other things, a revised and modernized curriculum, improved teacher training and retraining, and classroom study materials to fit the new curriculum and the proposed television lessons. It is noteworthy that interest in the use of ITV preceded interest in broad educational change, but once the commission and the first television staffs began to work with ITV, and to consult experts who were familiar with it, the new and broader concept began to seem necessary and was accepted. It was this idea of a true educational reform, built around television, that El Salvador was trying to finance in 1967.

Approaches were made to the World Bank, which sent a team to make a brief feasibility study. This study team echoed what the Japanese engineers had said in 1962 about the favorable prospects for ITV in El Salvador. Inquiries about financing were made also to several other Latin American countries, to UNESCO, and to the United States Agency for International Development. Many of the commission members felt that the World Bank would be the most likely financing body. In the summer of 1967, however, something happened that changed these expectations abruptly.

Soon after his election in March 1967, President Sánchez Hernández of El Salvador met with other Latin American leaders at Punta del Este, where he heard President Lyndon B. Johnson propose the idea of a pilot project in Latin America to test the potentialities of instructional television for speeding educational development. President Sánchez Hernández and members of the Educational Television Commission lost no time in acquainting U.S. officials with their plans. USAID contracted with the National Association of Educational Broadcasters for a team of broadcasters and educators to make still a third feasibility study. It led to a positive decision on the part of USAID and also helped to crystallize planning for the use to which television would be put.

At this time there were two distinct points of view as to how ITV could best be used and how it should be organized. On the one hand, there were arguments for a large-scale dramatic demonstration of the medium in primary school, where six out of every seven El Salvador students were taught. This approach was generally favored by the USAID advisers. Most of the Salvadoran officials, on the other hand, preferred a smaller and slower beginning, centering in the Third Cycle of Basic Education, where they perceived their greatest educational needs. The idea of an autonomous institute for making ITV programs still had strong backing, but some, including many USAID advisers, thought it would be better to keep ITV close to the Ministry of Education which would be in charge of curriculum, teacher training, teaching materials, and the other components of educational reform.

The appointment of Lic. Beneke to be Minister of Education, in July

of 1967, affected the decision on both these questions. With Beneke at the head of the Ministry, ITV was assured of sympathetic support in the government. When the new minister made educational reform his main goal, it helped to put television in the perspective of broader educational change. Consequently, what came out of the talks and planning in the early months of the new government was a systematic plan for educational reform far more comprehensive than simply introducing educational TV.

B. Aspects of the Reform

Although built around ITV in the Third Cycle of Basic Education, the Salvadoran educational reform has touched virtually every aspect of education in El Salvador. The major features of the Reform have been the following:

1. Reorganization of the Ministry: When Minister Beneke came into office in 1967, he inherited a loose organization housed in twenty buildings scattered throughout San Salvador. One of his first priorities was to put his own house in order, which he accomplished with the aid of a study by a management consulting firm, a considerable amount of reorganization, and the centralization of most of the units of the Ministry in one location.

Again in 1971, the Ministry underwent reorganization. First in an administrative change, the three years of Plan Básico, seventh, eighth, and ninth grades, were removed from the Division of Secondary Education and joined with the six years of primary education under the new Division

of Basic Education. The first three grades of primary education became the First Cycle and the second three became the Second Cycle. The second change was to eliminate tuition in the Third Cycle, thus opening up the seventh grade for all graduates of grade six. The effects on Salvadoran education of these two changes were far-reaching and will be discussed in detail in the pages which follow.

2. Teacher training: So many official, semi-official, and private normal schools had come into existence in El Salvador by 1967 that they were producing primary teachers in numbers far surpassing the need for them. At the same time these teacher training schools were not providing training of sufficient quality. Thus there were more than 2,000 primary school teachers unemployed in the spring of 1967, yet only about 20 percent of the Third Cycle teachers had ever received the advanced training necessary for them to teach at that level. Minister Beneke took the bold step of closing most of the normal schools of the country (an action which, needless to say, aroused serious political repercussions), and concentrated all subsequent teacher training in a national facility, the Ciudad Normal Alberto Masferro, at San Andres. This facility was well-staffed, furnished with an adequate library, adjoined schools that could be used for observation and practice teaching, and was equipped with modern practice devices such as a videotape recorder for micro-teaching. Before television was introduced into the first classrooms, 100 classroom teachers were sent to this school for an intensive three-month course in the substance of the new curriculum, teaching methodology, and techniques for teaching with television. In the three year period, 1969-1971, approximately 600 more

Third Cycle teachers who were to teach in television classrooms were given a nine-month retraining course of the same kind. During the ret-aining course, the teachers were paid full salary, and provided room and board. Along with these new courses for Third Cycle teachers, the normal school began to offer specially tailored courses for primary and secondary school administrators, guidance counselors, supervisors, and other members of the educational system whose needs for further training were judged to have priority.

3. Curriculum revision: Minister Beneke once remarked that the courses of study he found in use when he took office were designed to produce "human archives" -- graduates who would learn by rote and mechanically reproduce on examinations a large number of facts and concepts which had very little practical relationship to the needs of the country or to the problems they, themselves, would have to solve during the remaining years of their lives. Consequently, one of the important goals of the Reform was a complete revision of the curriculum from the first grade through secondary school. A commission of Salvadoran educators worked on this task, together with advisers furnished by USAID and by UNESCO. They endeavored to write the new curriculum in terms of relevant objectives, accompanied by suggested activities and teaching methods, bibliographical references, and techniques for evaluating students' progress. The new curriculum was put into effect in the seventh grade ITV classrooms in 1969, in seventh and eighth grades in 1970, and in seventh, eighth, and ninth grades in 1971. Meanwhile, the new curriculum for grades one through

six was being put together and parts of it pretested in experimental schools and classrooms. The new primary curriculum, a new high school curriculum, and a revised Third Cycle curriculum, were introduced throughout El Salvador at the start of the 1971 school year.

The new curriculum for the First and Second Cycles of Basic Education necessitated some hasty teacher training. Many teachers in primary school found themselves at a loss with the new curriculum, and especially with the section on Modern Math. Third Cycle teachers had received nine months of retraining -- primary school teachers only a few hours. In response to this problem the Ministry organized a crash program of televised retraining for primary teachers. All regular classes were suspended for one week. The curriculum writers joined with television production teams to prepare programs to explain the new primary school curriculum. The solid week of instruction was followed for several months by regular Saturday ITV programs for teachers. How many teachers took advantage of this non-compulsory instruction is not known. In any case, the Ministry gave those primary school teachers who were uncomfortable with the new material permission to use the old curriculum for an additional year. Thus by 1972 all nine years of Basic Education were using the new Reform curriculum.

4. New Study Materials: A new curriculum, and the problem of helping Third Cycle teachers to be effective in a classroom with television, made obvious the need for student workbooks and new teachers' guides. These were prepared, keeping pace with the expansion of television and the new

curriculum, and taking advantage of a new and excellent graphics facility provided by the Ministry. By general agreement, the new materials contributed greatly to the effective utilization of the television lessons.

5. Supervision: Advice Instead of Inspection: Supervisors in the El Salvador system had typically been "inspectors" who visited classrooms to check up on the teacher and turn in a report on him, rather than to offer professional advice or positive reinforcement. The architects of the Reform wanted to establish a different kind of supervisor who would be an adviser to the classroom teachers and help them adapt to the new problems of teaching with television and with a different curriculum. These "utilization supervisors" had a stormy beginning during the first years of the Reform, largely because they were not welcomed by the officials who were then in charge of secondary education. Ministry officials were unable to recruit new supervisory personnel in sufficient numbers, and one entire class of new supervisors was returned to classroom teaching (for legal and political reasons) instead of being assigned to the job for which they had been trained.

This aspect of the Reform was effectively aborted or at least indefinitely postponed in December 1969 when the Ministry transferred the ITV "utilization supervisors" to the Supervision Section of the Division of Secondary Education.

In 1971, when the Ministry unified the first nine grades in the new Division of Basic Education, this aspect of the Reform received a further

setback. In the unification, the supervisors who had been trained to work in the Third Cycle were placed in a unit with former primary school supervisors with responsibility for all nine years of basic education. Under the new structure few supervisors offered teachers useful pedagogical advice. Supervisory effectiveness was further hindered by the 1971 teachers' strike. Nevertheless, preliminary evidence from 1972 suggests that supervisors are becoming more effective than in the past. Indication of this progress is found in the regional training seminars which the supervisors organized for over 15,000 primary school teachers.

6. Feedback and Evaluation: The original Salvadoran reform plan, "Fundamental Policies of the Educational Reform 1968-1972," called for periodic Ministry evaluations of various aspects of the Reform. In addition to these periodic evaluations, plans also called for on-going feedback on the new system. In the realm of ITV, feedback took the following forms:

- In 1969, utilization supervisors made weekly visits to all TV classrooms, following which resumes of teachers' reactions to programs, guides, and workbooks were prepared for ITV production teams.
- Teleteachers and other members of production teams were encouraged to personally visit schools and talk to teachers and students.

- In 1970 and 1971, a system for making tests and administering them by television was developed. Results were then relayed back to the studio -- within at most three days -- so that improvements could be made in the ITV programming.

- In 1972, a system for pretesting taped lessons was inaugurated on a limited basis to help studio producers and teachers gain insight into the most effective television teaching techniques.

Evaluation of ITV was, in general, coordinated by an evaluation section within the Ministry's Division of Educational Television. El Salvador evaluators were assisted by members of a U.S. research team financed by USAID through the Academy for Educational Development. This team, drawn largely from Stanford University, began studying the El Salvador experiment with ITV in the summer of 1968 -- six months before television was introduced into classrooms. As a result of these efforts by both El Salvador and American researchers, the Salvadoran project has been more carefully and comprehensively studied than any other major experiment with ITV.

7. Building Facilities: El Salvador has had an acute shortage of schools. Many children in the rural regions had no schools available, and many of the primary schools offered only three grades, rather than six. Many rural Third Cycle schools had poor facilities, making it almost impossible for them to use television. The major part of the loan money

obtained or sought by El Salvador in connection with its educational Reform has therefore been assigned to the building of new school facilities. Also, there has been an intensive effort to remodel the Third Cycle buildings so as to permit efficient use of ITV. By 1973 approximately 1,000 new classrooms for both Secondary and Basic Education will have been built. In addition, a new ITV production center and broadcasting station were completed in late 1972 and new TV receivers were installed in 227 more public and 36 more private schools.

8. Instructional Television: El Salvador's approach to educational reform has been a systematic one encompassing all of the above features; nevertheless, throughout the Reform ITV has been a catalyst of interest for the whole movement.

Because the focus of this report is on television's role in the Reform, we shall spotlight this aspect of the Reform in the pages which follow. However, it is important to remember that ITV is only one aspect, albeit the most publicized, of the Salvadoran Educational Reform.

IV. INSTRUCTIONAL TELEVISION

A. Development

Following the appointment of Lic. Beneke as Minister of Education in the summer of 1967, plans for ITV in El Salvador progressed steadily. A Division of Educational Television was established within the Ministry and for over a year this group produced experimental programs and conducted training courses in the studios of one of San Salvador's two commercial stations. Because the local commercial station broadcasted a preponderance of imported programs, its own production facilities were too limited to meet the needs of the ITV producers and directors. As a result, scheduling conflicts developed between the ITV people and the commercial staff.

All concerned were convinced of the need to provide the emerging ITV system with a home of its own. Accordingly, in the spring of 1968 El Salvador signed a project agreement with USAID under which the latter agreed to finance studio and transmission equipment, graphic arts equipment, printing machinery and 100 television receivers. The El Salvador government contributed a site and buildings and on September 20, 1968 an ITV production studio and videotaping facilities were inaugurated at San Andres, 15 miles outside San Salvador.

Though the ITV television teachers, producers, writers and technicians were relatively inexperienced, they worked diligently to learn their jobs and to produce a backlog of recorded programs. In February 1969, the first ITV broadcasts began in 32 pilot seventh grade classes. The following

year when eighth grade broadcasts were to begin, another crew had to come in and learn its job in a few months. And once again in 1971 still another team had to be trained in order to produce the ninth grade programs.

B. Administration

As mentioned previously, instructional television in El Salvador is organized as a division of the Ministry of Education. As of late summer 1971, approximately 200 people were on its staff, 75 of them in program production, 30 in the technical side of production, and 38 in the production of teaching materials, including chiefly the teachers' guides and classroom workbooks, but also films and graphic materials for the broadcasts.

At first the utilization supervisors were a unit within the Division of Educational Television, but they have been transferred to the new Division of Basic Education (grades 1-9), which is responsible for the school directors and teachers with whom the supervisors deal.

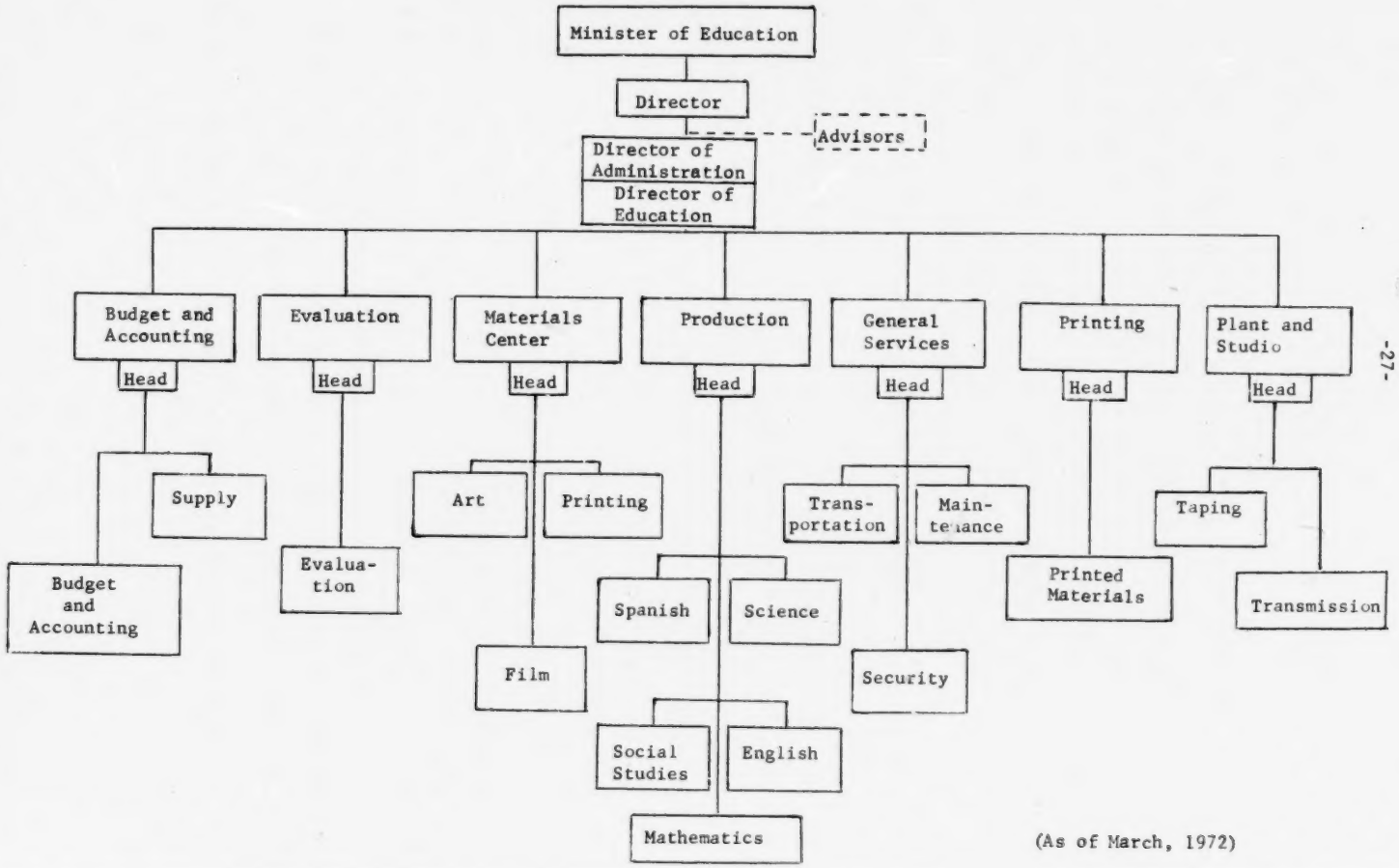
Figure 2 shows the organization of the ITV division as of March, 1972.

C. Program Production

The production teams of the ITV division are made up of five persons each. Two of these are subject matter specialists; one, a television teacher; one, a producer-director; and one, a production assistant or "coordinator." With occasional exceptions, all of these individuals are

Figure 2

Division of Educational Television



(As of March, 1972)

former classroom teachers. Each team also has typing service available.

The subject matter specialists are responsible for the content of each broadcast. They work from the curriculum and prepare an outline of instructional objectives as well as the specific points to be covered. They are also responsible for preparing the classroom materials -- the teachers' guide, and the student workbook. These books are of formidable size: about 200 pages for the guide, 250 to 300 for the workbook. The teleteacher, of course, is responsible for putting the program on the air, and he is chosen in part for his qualities as television "talent." The producer is responsible for the shooting script and for what happens in the studio -- the television performance, studio sets, camera angles, duration of scenes, and the like. The production assistant is chiefly responsible for gathering the visuals that go into the program -- the charts, models, slides, film clips, and sometimes pupils or other participants who have a part in the broadcast.

Lest this description give an impression of a fragmented operation, however, it should be understood that a great deal of the planning and preparation for each program is done as a team. The teleteacher discusses with the curriculum specialists the major points to be emphasized in each lesson; the producer joins in the discussion of how the program is to be presented; and all of them turn to the production assistant to consider what visuals can be made available for the broadcast.

Each team is presently responsible for two or three programs a week.

This number has gradually decreased from four to three (or in one class, two) programs per week, as this table shows:

TABLE 1

TV CLASSES PER WEEK PER SUBJECT

	1969* Grade 7	1970 Grades 7 and 8	1971 Grades 7, 8 and 9**	1972 Grades 7, 8 and 9
Spanish	4 (3)	2	2	2
Social Studies	4 (3)	3	2 (3)***	2 (3)
Science	4 (3)	3	3	3
Mathematics	4 (3)	3	3	3
English	3	3	3	3

* After June 1969, ITV programming was reduced to 3 hours per subject.

** In the ninth grade in 1971 there were no ITV programs after July.

*** Eighth and ninth grades received only two social studies per week via ITV in 1971 and 1972, while the seventh grade received three.

This reduction reflects in part the need to crowd production into a single studio, in part a need to use air time as economically as possible, and in part a somewhat altered idea of the optimum useful number of programs a week. During 1971 and 1972 the studio has usually been in use 12 hours a day, and the average time available per 20-minute program to a production team has seldom been more than 90 minutes. In addition to the classroom programs during 1971, a special series was broadcast on Saturday

mornings to help primary teachers prepare to teach the new curriculum which was introduced that year into the first six grades. In 1972 more than 400 hours of live or recorded production was broadcast to Third Cycle students.

Late in 1972 an additional studio became ready for use at the Santa Tecla site and sometime in 1973 a new ITV broadcast station at Santa Tecla should also be ready for use.

V. COSTS OF ITV AND THE REFORM*

A. Costs of the Reform

As is shown in Table 2, the costs of educational reform in El Salvador from 1966 through 1973 will total almost $30 million, or 75 million Salvadoran colones. The single greatest cost entry will be non-ITV capital expenditures -- primarily building new classrooms. Altogether capital costs -- including both ITV and non-ITV capital costs -- account for slightly more than 70 percent of the costs of the whole Reform.

In 1966 and 1967 the Reform started slowly, amounting to less than one percent of the Ministry of Education budget. By 1970 this figure had grown to nine percent. And in 1971 Reform expenditures leaped to almost one-fifth of the total Ministry of Education budget. This remarkable upsurge in Reform costs -- to almost $8.5 million -- was due in large measure to the new Ministry policy of eliminating tuition for the Third Cycle, thus opening it to every qualified student in the country. This resulted in 38,000 students in the Third Cycle in March 1971 -- an increase of 35 percent over the previous year. The upsurge in Reform costs derived also from the expanding program of school building at both primary and secondary levels and increasing enrollments due to the liberalized student promotion system inaugurated in late 1971.

B. Costs of ITV

As is shown in Table 2, the costs of ITV in El Salvador have never

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* See Educational Reform and Instructional Television in El Salvador: Costs, Benefits and Payoffs, Part II and Appendix III, for a discussion of methodological problems in the costing of the ITV project.

TABLE 2

TOTAL COSTS OF EDUCATIONAL REFORMS IN EL SALVADOR
COMPARED TO TOTAL EDUCATIONAL BUDGET

1966 - 1973

(In millions of dollars U.S.)[1]

Major Categories	1966 and 1967[2]	1968	1969	1970	1971	1972 and 1973[2]	Grand Totals	% of Total
A. Operating Costs:								
ITV			.28	.36	.44	1.00	2.08	7%
Non-ITV			.68	.88	.60	1.36	3.52	12%
Total			.96	1.24	1.04	2.36	5.60	19%
B. Capital Costs:								
ITV		.96	.28	.28	1.80	.32	3.64	12%
Non-ITV		.24	.04	.68	5.00	11.56	17.52	59%
Total		1.20	.32	.96	6.80	11.88	21.16	71%
C. Non-Recurrent Start-up Cost								
ITV	.08	.32	.32	.24	.20	.40	1.56	5%
Non-ITV	.24	.12	.12	.12	.36	.6	1.52	5%
Total	.32	.44	.44	.36	.56	1.0	3.08	10%
D. Yearly Total								
ITV	.08	1.28	.88	.88	2.44	1.72	7.28	24%
Non-ITV	.24	.36	.84	1.68	5.96	13.48	22.56	76%
Yearly Total	.32	1.64	1.72	2.56	8.40	15.20	29.84	100%
E. Ministry of Education Budget	46.00	25.08	26.72	29.96	44.50			
F. Yearly Total Reform Costs as % of Ministry Budget[3]	0.7%	7%	6%	9%	19%			
G. Yearly ITV Costs as % of Ministry Budget	0.2%	5%	3%	3%	5%			

1. For the sake of ease in comparison, all cost figures are given in dollars (U.S.). The conversion ratio used is the official exchange rate of 2.5 Salvadoran colones to U.S. $1.

2. Estimated two years together.

3. Yearly total reform and ITV costs have been calculated as % of Ministry budget even though some reform/ITV costs were covered by foreign grants instead of Ministry funds. See Table 4.

Source: Educational Reform and Instructional Television in El Salvador: Costs, Benefits, and Payoffs, Tables 2.4, 2.5, and 2.14. See Bibliography.

surpassed 5 percent of the Ministry of Education budget. It is anticipated that the costs of ITV through 1973 -- roughly $7.3 million -- will amount to less than one quarter of the total costs of the educational Reform. This point is of particular salience because it emphasizes the fact that ITV in El Salvador has not been simply a drop of innovation in a sea of tradition. Rather it has been a single feature of a comprehensive and systematic reform of the whole school system.

Table 3 illustrates the annual cost of ITV per student viewer. The cost for each Third Cycle viewer fell from $164 in 1969 to roughly $13 in 1972. This twelve-fold reduction in per student ITV cost was gained through economies of scale as the capital expenditures of ITV were spread over a wider and wider audience. In 1972, the annual per student cost of ITV will amount to less than 15 percent of the normal Third Cycle per student operating cost. Of particular interest is the contrast between the sharply declining per student costs of television and the rising per student operating cost per Third Cycle student which increased more than 12 percent while the annual per student cost of ITV fell by more than 90 percent.

Table 4 shows the amortized program production costs of ITV in the years 1969-1971. As is evident from this table, the average production cost of a 20 minute program fell from $342 in 1969 to $247 in 1970. This decrease derived mainly from the increased efficiency of the program production teams. While in 1971 the per program production costs rose to $283, the rise resulted largely from new capital expenditures.

TABLE 3

ANNUAL COSTS PER STUDENT OF ITV PROGRAMS IN EL SALVADOR
1969 - 1972

(In dollars U.S.)

Item	1969	1970	1971	1972 Estimated
A. Cost of television programs in Third Cycle				
1. Cost of ITV programming	$292,000	$344,000	$388,000	$396,000
2. Capital costs - (annual amortization)				
Transmission facilities	32,800	32,800	32,800	208,000
Receiving sets	2,800	10,800	10,800	30,800
3. Total cost per year	$327,600	$387,600	$431,600	$634,800
B. Number of students in tele-classes each year	2,000	14,000	32,000	48,000
C. Cost per student per year of television education	$ 164.00	$ 27.70	$ 13.50	$ 13.20
D. Total Annual Operating Cost per Third Cycle Student	$ 92.40	$ 96.00	$ 101.20	$ 104.00
E. Cost of television education as % of total Third Cycle education costs	*	29%	13%	13%

* Not comparable, inasmuch as only a very small proportion of Third Cycle students were involved in the first year of the program.

Note: The estimates in this table assume that television programs have a useful life of three years; that the transmission facilities should be amortized over a 10-year period and the television sets over a five-year period.

Source: Educational Reform and Instructional Television in El Salvador: Costs, Benefits, and Payoffs, Table 3.6 and enrollment data from the Ministry of Education, El Salvador.

TABLE 4

AVERAGE PROGRAM PRODUCTION COSTS OF ITV, EL SALVADOR

1969 - 1971

(In dollars U.S.)

Cost for Standard 20-Minute Program[1]	1969	1970	1971
A. Operating expenditures for ITV department[2]	$297,000	$348,000	$424,000
B. Program output (number of approved program tapings)[3]	507	841	883
C. Average production cost of program: (A) ÷ (B)	$ 585	$ 416	$ 480
D. Average production cost per program, including revisions during assumed 3-year program life: (C) x 1.70[4]	$ 994	$ 707	$ 816
E. Average annual production cost of 3-year program	$ 331	$ 236	$ 272
F. Annual cost of usage of magnetic tape[5]	$ 11	$ 11	$ 11
G. Average annual cost of 3-year program, including tape	$ 342	$ 247	$ 283

1. Excludes capital depreciation. Includes preparation of guides and workbooks.

2. Note that the operating expenditures cited here are slightly higher than those given in Table 3. They are higher because these calculations are based on all ITV programs: costs in Table 3 cover only those for the Third Cycle ITV. See note 3.

3. Includes 10 special programs not for Third Cycle; 9 in 1969, 10 in 1970, 77 in 1971.

4. Based on 50 percent revision in second year and 20 percent in third year.

5. Based on tape cost of $56 per program and 5-year tape life, during which no more than 6-10 passes are likely to occur.

Source: Educational Reform and Instructional Television in El Salvador; Costs, Benefits, and Payoffs, Tables 2.9 and 2.10.

As was shown in Table 3, the cost per student per year of television education was $13.50 in 1971. Assuming that on the average, each student watched 13 ITV programs per week for 38 weeks, this works out to a cost of 8.2¢ per student per hour of ITV. Table 4 shows that in 1971 the average annual production cost of an ITV program (including the cost of video tape) was $283. Since the average audience size for any program was approximately 11,000 in 1971, the production cost of putting one hour of ITV in front of one student was approximately 7.7¢. These figures compare favorably with the per hour operating cost of Third Cycle education without television which is 10.7¢, (assuming an average of 25 hours of class per week for 38 weeks.)

However, under present procedures, the teacher is not going to do something else while the television lesson is in progress. Therefore, the cost of teleteaching in the classroom will always be added to the full-time cost of the teacher, and no matter how economically the ITV is operated, it will always constitute an add-on cost. There are, however, certain situations where television, when it replaces other educational resources, will save money. For example, Professor Richard Speagle demonstrated that it would be considerably cheaper to offer rural education and teacher training, depending largely on television, than to offer such learning opportunities in the more conventional way.*

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* In his study Educational Reform and Instructional Television in El Salvador: Costs, Benefits, and Payoffs.

But as long as television teaching is treated as an add-on cost, it must be defended as a part of the mix of learning opportunities, along with the classroom teacher, the textbooks, programmed instruction, films, or whatever is used. As such, is it worth 8¢ per student per hour?

Section VI of this report seeks to answer this question.

C. Financing Instructional Television

As has been discussed previously, the initiative for the establishment of ITV in El Salvador lay completely with Salvadoran leaders. But as also mentioned previously, El Salvador has been assisted in building its system of ITV by numerous foreign agencies including those of Japan, UNESCO, the World Bank and the United States. A particularly relevant question then is who has really paid for ITV in El Salvador?

The answer is evident from Table 5. Through 1973 the Salvadoran government will have paid outright for over 50 percent of the costs of the ITV system. In addition, El Salvador will shoulder the burden of an additional 30 percent of the ITV costs through foreign loans. Only one-fifth of the costs of ITV will be accounted for in terms of foreign grants and donations.

Also of particular note is the fact that in the crucial early years of 1966 and 1967, El Salvador financed the ITV program in its entirety. Not until 1969 did foreign inputs amount to more than 15 percent of the total inputs into the ITV program.

TABLE 5

SOURCES OF FUNDS FOR INSTRUCTIONAL TELEVISION IN EL SALVADOR

(In millions of dollars U.S.)

	*1966-1967	1968	1969	1970	1971	*1972-1973	Totals $U.S.	Totals %
A. Total Costs of ITV	.08	1.28	.88	.88	2.44	1.72	7.28	100.
B. Use of Salvadoran Funds	.08	1.12	.28	.60	.52	1.08	3.68	50.5
C. Foreign Loans to El Salvador								
Investment Costs					1.68	.24	1.92	26.
Technical Assistance					.04	.16	.20	3.
Subtotal					1.72	.40	2.12	29.
D. Foreign Grants and Donations								
Investment Costs		.04	.28	.04	.04	-	.40	6.
Tech. Assistance		.12	.32	.24	.16	.24	1.08	14.5
Subtotal		.16	.60	.28	.20	.24	1.48	20.5

* Two-year estimate.

Source: Educational Reform and Instructional Television in El Salvador: Costs, Benefits, and Payoffs, Table 2.5

In short, the financing of ITV in El Salvador, like its planning and programming, has been very much a Salvadoran endeavor.

VI. BENEFITS OF THE REFORM

The evidence is not yet all in on the benefits of educational reform in El Salvador. Three full years have now been studied in some detail. Results on the fourth academic year which ended late in 1972 will be available in March of 1973. Only then will the ongoing evaluation be completed and will the evaluation team be able to draw conclusions on the basis of reasonably complete evidence. This, therefore, is an interim report.

A. Learning

Evidence from 1969 shows clearly that the Reform program with new curriculum, television, retrained teachers, new classroom materials and new supervision resulted in better student learning than did the old system without any of these new components.

In order to compare the classes that used the Reform curriculum with those who were still studying the old curriculum, achievement tests were analyzed so as to identify questions that covered material common to both curricula and questions that seemed to favor the content of the new curriculum. Students in the New Reform System classes gained more than the others on the questions that were judged to emphasize the new curriculum, but they gained about as much more also on the questions that were common to the two curricula. The content of the revised curriculum, therefore, may be less different than suspected, or the achievement test may be measuring general achievement, rather than specific content learning. As the following table shows, the pupils in the New System were

able to answer, on the average, about 20 per cent more questions than pupils in the Old System whether or not the questions seemed to fit more closely to the new curriculum.

TABLE 6

Difference Between Proportion of Questions Answered Correctly by Students in the Reform (TV) and Old Systems

Subject	Common Questions		TV Questions		All Test Questions	
	No. of Questions	% More by TV	No. of Questions	% More by TV	No. of Questions	% More by TV
Mathematics	30	25%	20	28%	50	27%
Social Studies	22	18%	28	12%	50	15%
Science	18	15%	32	24 %	50	20%
Total					150	21%

Source: Television and Educational Reform in El Salvador. Complete Report on the First Year of Research, Table 7.

Because 1969 was the last year when a clear comparison of new and old could be made, it may be interesting to look at the raw scores. The figures in Table 7 represent the performance of 1,340 students from 32 classes using the New System and 16 classes using the old one. They show that in each of the three subjects that were studied, the Reform classes started lower than the Old System ones and ended the year significantly higher.

TABLE 7

Mean Scores in Three Subjects Before and After the First Year: New and Old System Classes

Subject	New System Classes	Old System Classes
Mathematics		
Mean score, February	11.79	12.22
Mean score, October	18.06	14.17
Gain	6.27	1.95
Social Studies		
Mean score, February	26.55	26.82
Mean score, October	33.77	29.43
Gain	7.22	2.61
Science		
Mean score, February	17.82	18.47
Mean score, October	23.79	19.81
Gain	5.97	1.34

(Differences between New and Old System classes on gain scores are all significant beyond the .001 level.)

Source: Television and Educational Reform in El Salvador. Complete Report on the First Year of Research, Table 8.

Comparisons such as the above were more difficult in later years because, beginning with the second year, the new curriculum and new materials were introduced into all classes, and a number of the classes without television were taught by teachers who had been retrained. Therefore, a comparison of the groups could show clearly neither the differences attributable to change of system nor to the use of television. Furthermore, there were certain unfortunate events in the second year that tended to depress

the measured learning gains -- for example, the late arrival of achievement tests in some subjects, so that they measured much less than a full year of change, and also some new eighth grade television series that were less than satisfactory. Nevertheless, student gains in all subjects in 1970 were significantly larger in the seventh grade classes with television; and in two out of three eighth grade subjects, the gains for eighth grade students with television were significantly greater (.05 level) than for students taught in the traditional way.

Again in the third year of the educational Reform, 1971, certain events greatly hindered effective evaluation. First, as previously mentioned, tuition for the Third Cycle was eliminated -- resulting in a 1971 seventh grade class 35 percent larger than that of 1970. Schools had to go on double shifts, and teachers were asked to take on additional work. This undoubtedly contributed to the major disruption of the school year -- the teachers' strike which began on July 5, 1971, and lasted nearly two months.

The enlarged seventh grade class of 1971 was comprised of a very different mix of students than had been in previous years' classes. For the first time a majority of students were girls. Also, the seventh graders in 1971 came on the average from poorer homes, where the fathers were less well educated, than previous seventh grades. The entering scores of the new class on general ability and reading averaged more than 10 percent lower than in 1970. Perhaps partially as a result of these disadvantages, the 1971 seventh grade class gained less in all subjects than did the 1970 class. Evidence indicates that the overall 1971 decrease in gain scores

was also due to the disruption of the school year caused by the teachers' strike. However, in two of the three subjects tested, 1971 Reform classes using ITV gained significantly more than Reform classes not using ITV in the seventh grade.

Also in 1971, the increases in learning measured for the eighth grade were less than in 1970. With no change in student background and ability, this decrease in learning gains must be attributed largely to the strike and consequent disruption of schools.

In 1971, all ninth grade Reform ITV students started the new year having already completed two years of the New System. These students invariably scored higher on entrance tests than did students who had not studied in Reform ITV classes. Gain scores for the 1971 ninth graders proved mixed. Through the school year, the Reform ITV students gained more in one subject, about the same in another, and less in a third than did the other students. However, the results for the ninth grade where disruption on account of the strike was greatest (ITV never even started up again after the strike) may be of dubious value.

B. ITV's Contribution

Experiments were designed in both the first and the second year of the Reform to try to separate out the contribution of television to learning scores from the effect of other components of the New System. In the first year, students were randomly assigned to eight classes. Four classes received television in a part of their classroom time and the others did not.

It would have been a better experiment if the teachers could have changed classes at mid-point of the year; but this was not possible. In the second year, the same kind of experiment was conducted in both the seventh and eighth grades, 12 classes in the seventh grade, 8 in the eighth. The total number of students in the first year experiment was about 300; in the two second year experiments, about 800.

The results were inconclusive. Both the experimental and the control classes gained considerably during the year, but the gains tended to be larger, although not sufficiently so as to reach an acceptable level of statistical significance, in the television classes. Further examination indicated that the difference in teachers in the experimental and control sections had something to do with this.

On existing evidence, therefore, the contribution of television to learning in an instructional system like Salvador's cannot be clearly estimated. Nonetheless, as many observers of the El Salvador experiment have pointed out, it would be impossible to adequately assess ITV's contribution to the success of the Educational Reform via such empirical methods. For ITV has served as a catalyst for the whole Reform movement and it is highly questionable whether or not the Reform would have come about at all if ITV had not been one of its component parts.

C. The New Classroom

As well as evaluating what came out of the new Reform classrooms, researchers wanted to know what happened inside them. In order to do so,

researchers developed a new observation method by which they could measure educational development by watching patterns of interaction within the classroom.*

Classroom observers were first trained to a standard of reliability. Sixteen eighth grade teachers were then randomly selected for a series of observations by a single observer. The teachers came from three separate groups: Old System teachers not yet affected by the Reform, New System teachers participating in the Reform with ITV, and New System teachers participating in the Reform, but without ITV in their classrooms. Each teacher was observed on three different occasions over a six-week period, and no teacher was advised of the day or time he would be observed.

The data from this experiment which are summarized in Table 8 yield the following conclusions:

1. New System teachers dictated to their classes only one-seventh as much as Old System teachers.

2. New System teachers asked more questions of all kinds of their students. Particularly they asked more thought questions, almost 10 times as many as Old System teachers.

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* The observation method and its development is described completely in Television and Educational Reform in El Salvador: Complete Report on the Second Year of Research, p. 133.

3. In an average class, Old System teachers used no audio-visual aids whereas in an average New System class teachers used two A-V aids.

4. Opinions were offered by students almost ten times as frequently in the New System as in the Old. Additionally, New System students asked questions of all kinds more frequently than did their fellow students in Old System classes.

In short, there is considerable evidence that educational reform is helping to introduce modern pedagogy into El Salvador's classrooms. The component of the Reform that seems to correlate most closely with the use of these more modern ways of teaching is the year of retraining. Generally, the Old System teachers in the sample had received far more general education and advanced teacher training than the New System teachers who were observed. But the Old System teachers were still teaching, doubtless, as they had been taught, whereas the year of retraining had exposed the New System teachers to different methods of instruction.

D. Equalization of Learning Opportunities

In connection with the evaluation of the Educational Reform, general ability and reading tests were given widely for the first time among junior high school level students in El Salvador. Quite spectacular differences were found between the ability and reading scores of urban and rural students, boys and girls, students whose mother and father had gone

TABLE 8

Average numbers of certain behaviors observed in different kinds of eighth grade classes, 1970

	Teacher dictation	Memory questions asked by teacher	Opinion questions asked by teacher	Thought questions asked by teacher	A-V aids, demonstrations, dramatizations by teacher	Opinions given by students	Questions asked by students (procedure, memory, thought)	Group work by students	Individual work by students	Teacher aid to individual students and supervision of student activities
New System with TV	0.6	10.0	6.6	0.8	2.9	2.1	2.7	2.7	3.3	3.3
New System without TV	0.7	7.2	5.3	1.0	1.1	1.4	2.8	0	5.2	2.0
New System with or without TV	0.7	8.6	5.9	0.9	2.0	1.8	2.8	1.4	4.3	2.7
Old System classrooms	5.3	7.2	2.9	0.1	0	0.2	1.6	0	7.1	3.0

Source: Television and Educational Reform in El Salvador. Complete Report on the Second Year of Research, Table 35.

beyond primary and those whose parents had not; students who had a television set at home (this being used as a simple test of affluence) and those who did not -- the advantage in each case going to the group first named.

Undoubtedly these differences stem from socio-economic and educational factors in the students' backgrounds. But, whatever the reasons, these differences do exist, and they are large. A question of considerable interest then is whether the New System and especially the exposure of all students -- rural or urban, affluent or impoverished, boys or girls -- to the same skilled television teachers tends to widen or to lessen the learning gap? Would the ability-rich get richer while the poor get placebos? Or would the New System lead to greater equity in learning?

This issue was studied in both the seventh and eighth grades in 1970. The students in each grade were divided in terms of the characteristics which seemed to make them "advantaged" or "disadvantaged" with regard to probable success in school. These were:

1. General ability and reading scores (either above or below the mid-point of this distribution).
2. Sex (male or female).
3. Father's education (above or below median level).
4. Residence (urban or rural).
5. Family affluence (as indicated by presence or absence of TV in the home).

Students' performances in relation to these five factors were examined for three subjects: mathematics, science and social studies. Thus, there were thirty groups for each grade, paired into fifteen dichotomies of "advantaged" and "disadvantaged." For seventh and eighth grades there were a total of thirty pairs.

The issue of equalization of opportunity may be posed in a number of different ways. For example:

1. Do the so-called "disadvantaged" groups gain less, the same or more than the "advantaged" groups?

2. Disregarding the nature of the groups or the direction of change, does the gap between the two halves of the dichotomized groups widen or lessen?

Tentative answers to these questions were obtained in 1970, and will be analyzed further and checked against the 1972 data. Presently available figures indicate that students under the Reform tend to show less increase in achievement gap than do students in more traditional classes. The "disadvantaged" groups perform relatively better to the "advantaged" groups under the Reform than do students in the traditional system. But a full understanding of this trend awaits further study.

E. Dropouts and Promotions

According to figures reported by the schools to the Ministry, the dropout rate in New System seventh grade classes was 8.8 percent; in Old System classes 13.3 percent. Thus, to the extent these figures are

accurate, it would appear that the Reform had some effect in decreasing dropout rates.

Also, there is some evidence that the Reform helped to boost Third Cycle promotion rates. In 1968, before any element of the Reform was introduced, 64 percent of all seventh grade students were promoted. By 1970, when the Reform spread throughout all seventh grade classes, the promotion rate jumped to 81 percent. Also in the eighth grade, introduction of the Reform brought a similar, though less dramatic, increase in the promotion rate.

The data are certainly consistent with an hypothesis of positive effect for introduction of the Educational Reform. Unfortunately, however, valid inferences about the Reform's effect on promotion rates and dropout rates cannot be made on the basis of existing data.

Further data will not help resolve this issue either since the data from post-1970 years will not be comparable to that of the earlier years. This is so because in 1971, as previously mentioned, the Ministry of Education instituted a system of oriented promotions. Under this system almost all students will be assured of promotion. Only in extreme cases will students be asked to repeat a grade.

Therefore, we must settle for indications of the Reform's salutary effect on both dropout and promotion rates. But we lack sufficient data to draw definitive conclusions.

F. Costs and Benefits

Cost-benefit analysis has proved to be a powerful tool in raising the efficiency of industries throughout the world. Indeed unless one weighs the measured benefits derived from any endeavor against the costs of that endeavor, he can never be certain that the funds invested in the endeavor might not have been better directed to some other enterprise.

Along these lines one might ask, have the benefits of the Educational Reform in El Salvador been worth the costs? Would the funds invested in Reform ITV have been better invested in say, agricultural development? First of all there is the difficulty of putting a price tag on human learning, or even quantifying it satisfactorily. Without any unit value on education it is impossible to compare educational output with that of cotton or coffee beans, on which a monetary value can easily be placed. The only readily available standard which then can be used in making even an extremely crude cost-benefit analysis is that of the pre-existing Salvadoran educational system. That is, how do the costs and benefits of Reform ITV compare with those of the Old System?

Analysis of the costs of Reform ITV in earlier sections revealed that by 1971 when economies of scale had come into effect, the costs of ITV in the Third Cycle totaled 13 percent of total Third Cycle education costs. Learning data in 1969 (the last year in which a clear comparison could be drawn between the new Reform ITV system and the old traditional system) showed that the New System resulted in an increase in learning of as much

as 20 percent as measured by achievement tests. If ITV had been the only aspect of Third Cycle Reform, these data would be an indication that ITV in El Salvador was cost effective. However, other inputs besides ITV clearly did contribute to the Reform of the Third Cycle. Third Cycle teachers were helped to improve their skills through retraining. Attempts to improve the supervisory system, new recreational facilities, and technical assistance also were part of the Third Cycle Reform. Unfortunately, however, it is impossible to assess exactly how much of the costs of these Reform inputs should be attributed to the Third Cycle. Therefore it cannot be said with certainty whether the ITV Reform for the Third Cycle was in fact cost effective. There are indications that it may have been, but no clear proof.

Yet not even economists judge production/distribution systems in terms of technical efficiency alone. They also take into consideration the criterion of equity. And as has been seen, preliminary evidence indicates that the Reform ITV system may help promote greater educational equity, that is, greater equalization of learning opportunities than does the Old System. However, from this preliminary evidence it cannot be said with certainty how much Reform ITV contributed either to equalization of learning opportunities or to learning gains. More definitive conclusions on these aspects of the ITV project in El Salvador and on the question of the project's cost-effectiveness will have to await the final evaluation study by the Stanford University research team.

VII. ASPIRATIONS AND ATTITUDES TOWARDS REFORM ITV

A. Students

1. Aspirations

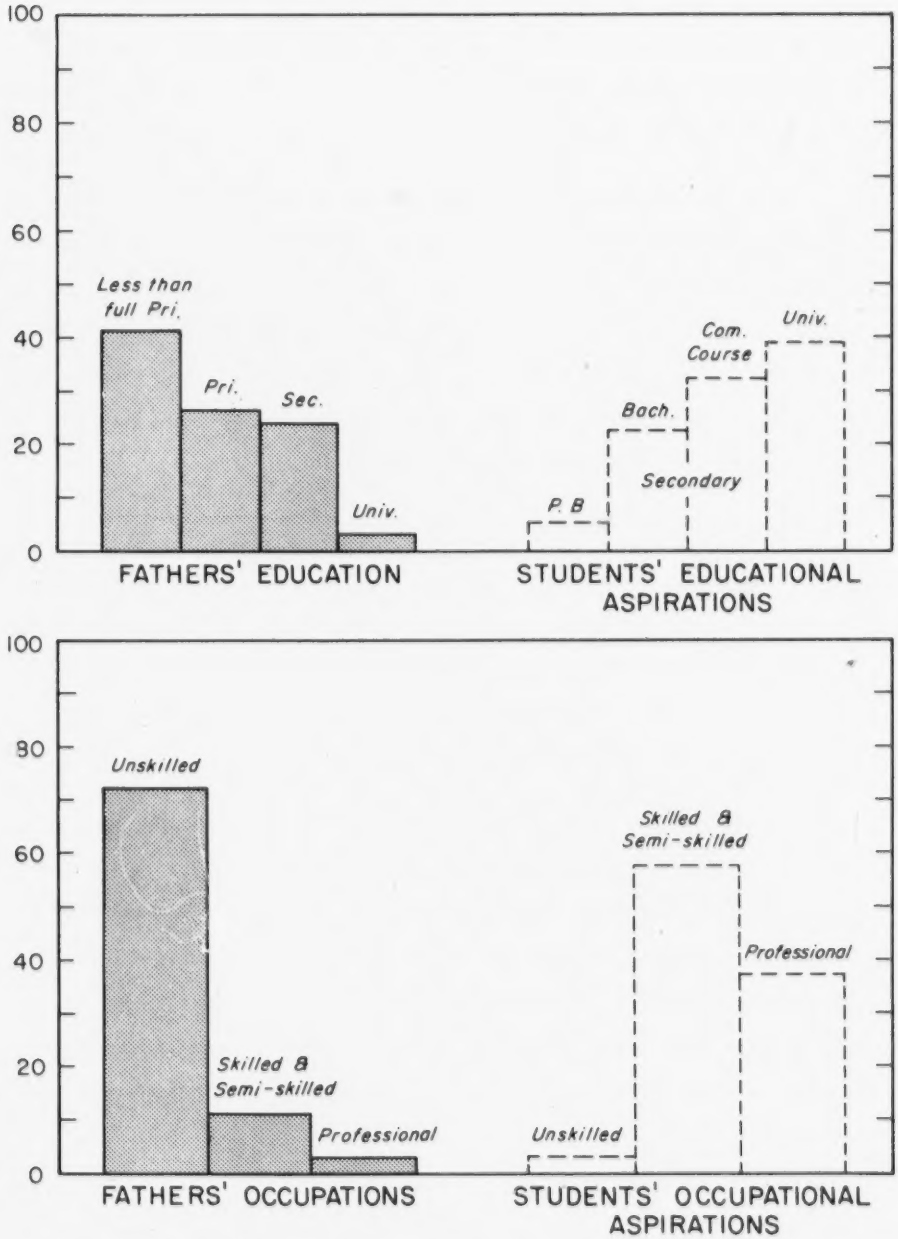
In order to assess both career and educational aspirations of Third Cycle students, comprehensive studies were carried out in 1969 and 1970. Unfortunately, it is impossible to tell whether the Reform really created great changes in educational and occupational aspirations since there is no comparable baseline data on aspirations before 1969 when the Reform was introduced. Nevertheless, the data from 1969 and 1970 carry a clear and potent message: The aspirations of Third Cycle students for both education and occupations are so high as to present real problems to Salvadoran planners in the near future.

Perhaps the best way to illustrate the nature of these aspirations is by comparing them with the actual education and occupations of the students' fathers. This data for the 1970 Third Cycle students is shown graphically in Figure 3.

As is shown in this figure, almost 40 percent of the Third Cycle students aspired to at least university level education while less than four percent of these students' fathers had attained university level education. Also the students' occupational aspirations far surpassed their fathers' achievements. More than 95 percent of the Third Cycle students hoped for professional, skilled or semi-skilled occupations while almost 75 percent of their fathers worked in unskilled occupations. And these high hopes by

Figure 3

Fathers' Education and Occupations vs. Students' Aspirations - 8th Grade



Source: Television and Educational Reform in El Salvador, Complete Report on the Second Year of Research, p. 123.

students do not simply represent wishful thinking. More than 60 percent of the students claimed that they either thought or were sure they would obtain their stated educational objective.

If these expectations should be achieved, it would indeed be a dramatic change in a single generation. Yet the cause for concern with such aspirations is simply that there is small chance of them being fulfilled. For example, the professional ranks in El Salvador are not sufficiently large to accommodate all those students who wish to join them. Also, the two Salvadoran universities could never handle the massive numbers of Third Cycle students who now aspire to attend universities.

2. Attitudes

A question closely related to the high aspirations of these junior high school level students is what are their attitudes toward the education which they are now getting? How have they reacted to the Reform ITV system? These sorts of questions have been studied in detail through the three years of the Reform ITV system.

Student attitudes toward ITV have been, and as far as we now know continue to be, remarkably favorable. Throughout the first three years of the Reform ITV a large majority of Third Cycle students who studied with TV felt that students learned more during classes with television than during classes without it. The most positive attitudes toward ITV were exhibited in 1969. This first year finding may have stemmed in part from a "Hawthorne effect," -- the excitement and novelty of a new program may have

generated special interest and approval. Yet even in the second year, when any "Hawthorne effect" would have diminished considerably, attitudes toward ITV remained very favorable. As is shown in Table 9, more than 70 percent of the students in both seventh and eighth grades, at both the beginning and the end of the year again expressed the feeling that students learn more from television classes than from classes without TV. In 1971, however, student attitudes exhibited a slight downturn. Students began the 1971 school year with attitudes generally slightly less favorable than they had expressed at the end of the 1970 school year. And at the end of 1971 school year students showed somewhat greater downturns in their attitudes toward television in the classroom. In each of the three grades, the proportion of students who indicated that more was learned in classes with TV than in those without it declined approximately 10 percentage points. The proportion of students in the ninth grade who agreed with the statement that after TV broadcasts there isn't sufficient opportunity to ask questions or give opinions, increased from 32 percent in March of 1971 to 44 percent in October.

The precise meaning of these evidently less favorable attitudes toward ITV at the end of 1971 is debatable. Very likely the decline is closely related to the tremendous disruption of the 1971 school year; first the massive influx of new students when Third Cycle tuition was abolished and then the teachers' strike which lasted nearly two months. Particularly the latter incident and the dissatisfaction of the teachers, which led to the strike, may have had a spillover effect on student attitudes toward

TABLE 9

Student Attitudes Toward Instructional Television
1970 - 1971

Proportion of Students Who Agreed With Statement

	Seventh Grade		Eighth Grade		Ninth Grade*
	1970	1971	1970	1971	1971
A. You learn more during classes with television than during classes without television.					
Beginning of year	79%	73%	78%	71%	82%
End of year	76%	64%	73%	62%	71%
Intra-year change	-3%	-9%	-5%	-9%	-11%
B. It seems that classroom teachers prefer to teach with ITV.					
Beginning of year	72%	62%	67%	57%	57%
End of year	66%	49%	65%	44%	45%
Intra-year change	-6%	-13%	-2%	-13%	-12%

* There were no ninth grade classes studying under the Reform/ITV system in 1970, thus there are no data for those years.

Source: Television and Educational Reform in El Salvador, Report on the Third Year of Research, Tables 8, 17, 18, and 25.

instructional television. For example, as shown in Table 9, by the end of 1971 less than a majority of students in each grade agreed with the statement that it seems that classroom teachers prefer to teach with ITV, whereas at the start of the 1971 school year an average of almost 60 percent agreed with that statement.

It is impossible to differentiate at this point, however, what have been the effects of the 1971 school disruption, and what are the effects of the continuing use of ITV in Third Cycle classrooms. Data from 1972, which was a far more normal and peaceful school year in El Salvador than was 1971, will give better answers to questions such as: Will student attitudes toward ITV bounce back up to their early 1970 and 1971 levels? Or does the 1971 data reveal a continuing trend of slackening enthusiasm which will continue into the 1972 school year?

B. Teachers

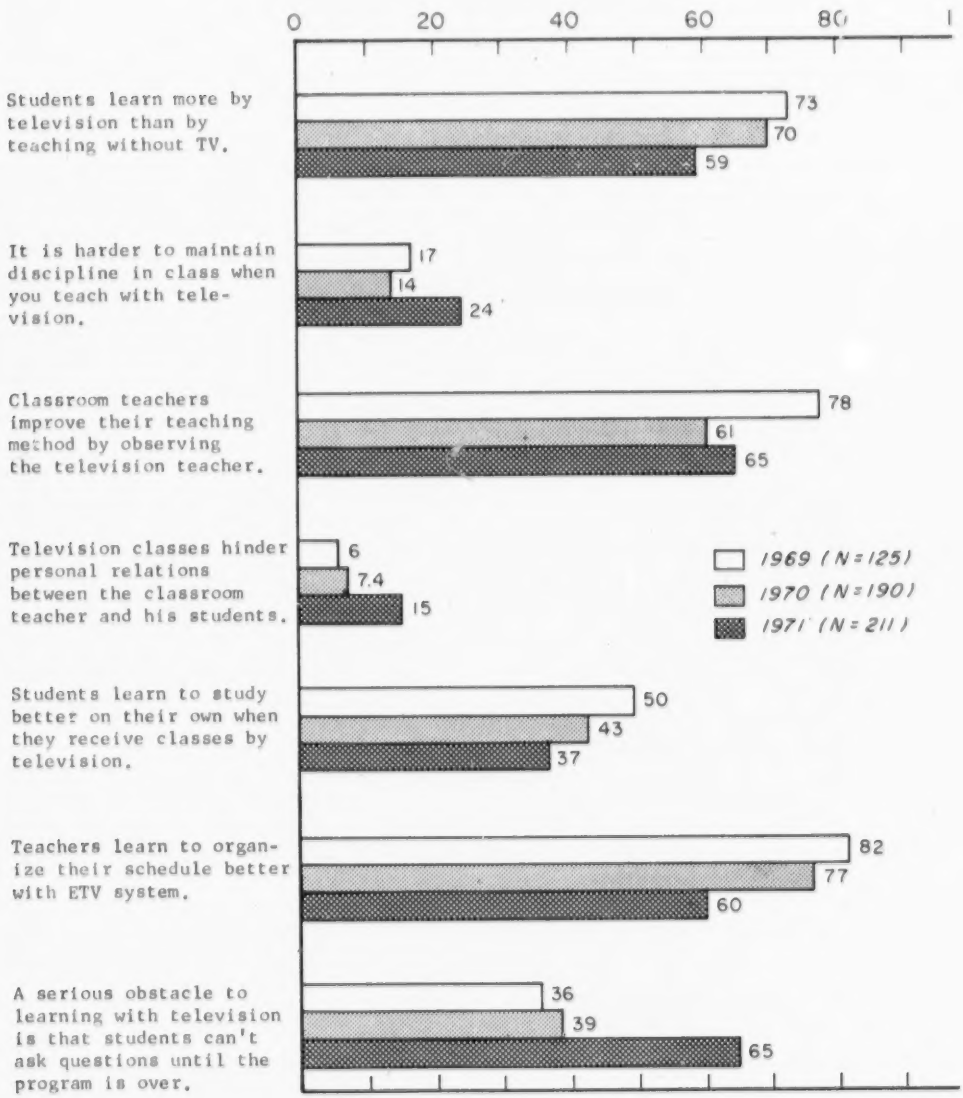
Teachers' attitudes, as well as those of students, have been studied throughout the first three years of educational reform in El Salvador. Data on teacher attitudes toward ITV for all three years are presented in Figure 4. As is shown in that graph, the proportion of teachers who feel that students learn more by television than by teaching without television has declined from its initial high level. In 1969, 73% of the classroom teachers surveyed felt that students learn more with television; 70% in 1970, and 59% in 1971.

Despite this continuing favorable attitude toward ITV, Salvadoran teachers also perceive that instructional television has important limitations. For example, in 1971, 65% of the teachers agreed that a serious obstacle to learning with television is that students can't ask questions until the program is over. In the same year a full 98% of the teachers agreed it is important that the teacher always be present during teleclasses.

Also, although the teachers continue to show favorable attitudes toward ITV, the 1971 data indicate a decline in satisfaction with ITV in a number of areas. Almost one-quarter of the classroom teachers reported in 1971 that it is harder to maintain discipline in class when you teach with ITV. Only 14% felt that way in 1970. In 1971 a full one-fifth of the teachers said students would learn more if they did not have TV in class. Only 10% said the same in 1970. Interpretation of these data is uncertain. Do they represent small, though real, declines in teacher attitudes toward ITV or

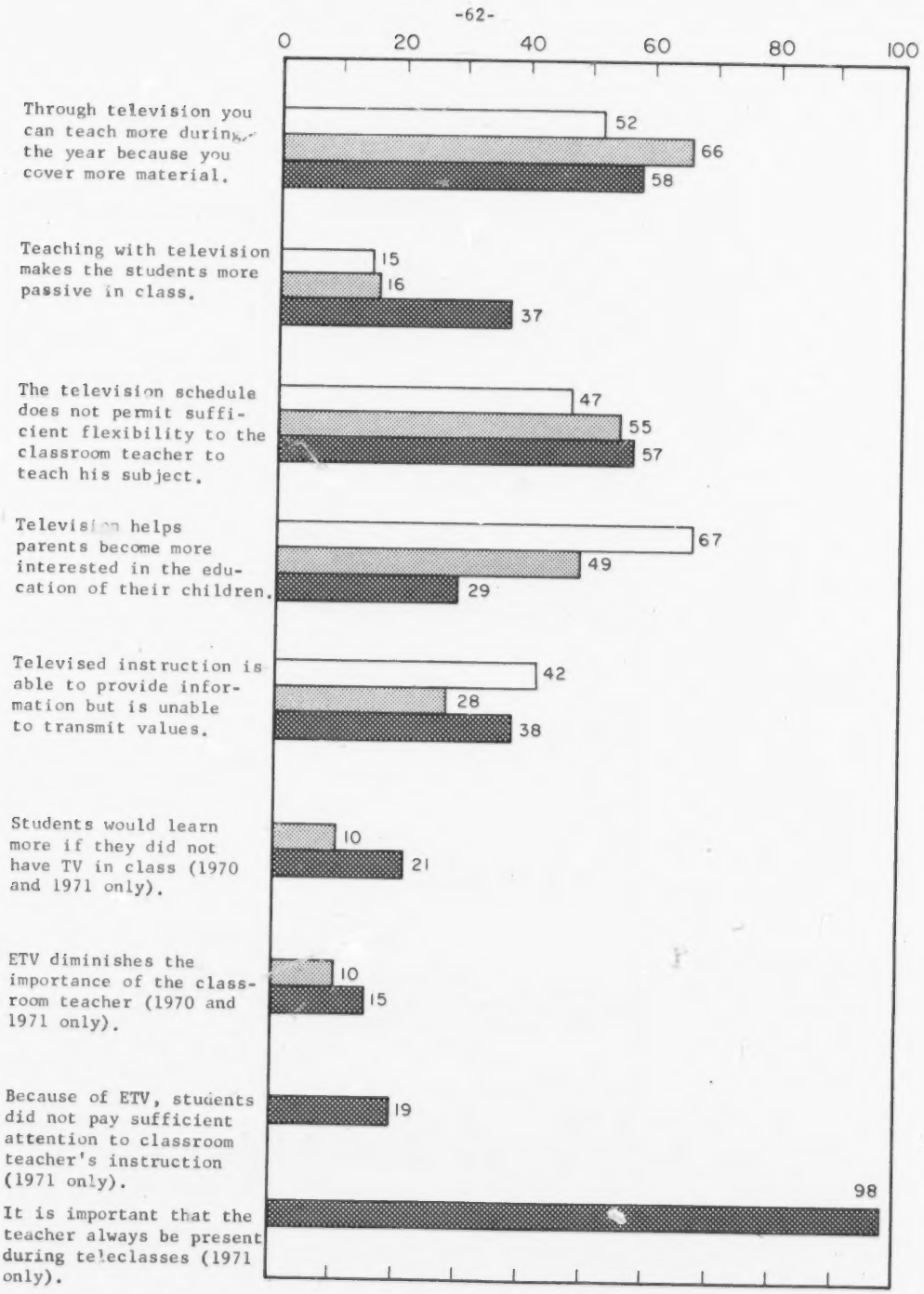
FIGURE 4

Comparison of Classroom Teacher Attitudes Toward ETV: 1969, 1970 and 1971
Percentage Agreement with Statements About ETV



Continued on next page

Source: Television and Educational Reform in El Salvador. Report on the Third Year of Research, pp. 51-52.


0
20
40
60
80
100
Through television you can teach more during the year because you cover more material.
52
66
58
Teaching with television makes the students more passive in class.
15
16
37
The television schedule does not permit sufficient flexibility to the classroom teacher to teach his subject.
47
55
57
Television helps parents become more interested in the education of their children.
67
49
29
Televised instruction is able to provide information but is unable to transmit values.
42
28
38
Students would learn more if they did not have TV in class (1970 and 1971 only).
10
21
ETV diminishes the importance of the classroom teacher (1970 and 1971 only).
10
15
Because of ETV, students did not pay sufficient attention to classroom teacher's instruction (1971 only).
19
It is important that the teacher always be present during teleclasses (1971 only).
98

do they show merely a spillover of teacher dissatisfaction from the 1971 teachers' strike?

Despite some indications of less favorable attitudes toward television in the classroom and of ill-feeling generated by the 1971 strike, teachers revealed in some of their responses an actually higher satisfaction with ITV in 1971. In 1971, for example, 65% of the classroom teachers reported improving their own teaching methods by observing the television teacher. This was a four-point increase over the 1970 figure. Therefore not only are there differing interpretations of the data trends, but the data trends themselves are not altogether clear.

Although we cannot conclusively identify or interpret the overall trend of teacher attitudes toward ITV, we can find patterns within the general trend. The attitudes toward ITV are not uniformly distributed among teachers. So we can, for example, sketch archetypes of teachers at each end of the satisfaction scale.

The teacher who is most satisfied with ITV teaching in his classroom is likely (other things being equal) to be teaching in a small school in a rural area. His subjects are Spanish and social studies. He has had no advanced training in pedagogy except the retraining at San Andres that preceded his entrance into teaching with television. He began his career as a primary teacher, but won an appointment in secondary when secondary school enrollments began to swell in the mid-1950's.

A corresponding composite portrait of the kind of teacher who is least enchanted with television would be of one who is teaching math or science at a large urban school. He prepared for a career as a secondary school teacher at the Normal Superior. Although his school was considered one of the best secondary schools in the country, it was not chosen as one of the pilot schools to try out ITV in 1969. When the television system expanded to all schools within range of the signal, this teacher was sent to San Andres fo· retraining. Because of his Normal Superior background, he was not required to go for the entire year, but had to spend his entire vacation there. He resented this, and spoke out harshly about the course and about the Reform in general. After retraining he returned to his school and now has been teaching with ITV for one or two years.

These are the extremes. Between them are the great majority of teachers who are neither exceptionally happy about nor highly dissatisfied with television. They see problems with television in the classroom, but in general are well-satisfied.

The problems that most bother the teachers are not directly connected either to the Reform or to ITV. A study showed that, despite salary raises resulting from the teachers strike, the problem most often named as "very serious" by Salvador teachers was the financial position of their own occupation. They continue to feel underpaid, and many of them feel resentful toward the Ministry. They seldom list direct complaints about the Reform, although many of them do complain about details of the way it is being administered: lack of teaching materials, too many students in class,

methods of assigning teachers to class, late arrival of guides and workbooks, and so forth. They agree almost unanimously with architects of the Reform, however, that all students should have a chance to go through the Third Cycle of Basic Education.

Among the top thirteen "very serious" educational problems listed by teachers, only two were connected with ITV in 1971. Twenty-nine per cent of the teachers listed the late arrival of guides and workbooks for ITV classes as a "very serious" educational problem. Also, 15% noted technical failures in the reception of the teleclasses as a "very serious" educational problem. As is shown in Table 10, among the top thirteen "very serious" educational problems, these two problems connected with ITV ranked only ninth and twelfth respectively.

C. Parents

In order to assess in greater detail the origin and strength of students' attitudes and aspirations, researchers in 1970 conducted a special study of Salvadoran parents. Interviews were conducted in person with 247 parents. As expected, the educational level of the parents was generally much below that of their sons. Sixty percent of the sample had not completed primary school. More than 90% of the parents deemed their own levels of schooling "insufficient" and expressed the wish that they could have gone further in school. In discussions of their own low educational levels, parents often mentioned that they could never "escape" the threat of unemployment. Indeed, it was not the low level of their own education or occupation

TABLE 10

Problems With Teaching and With The Educational System
Percentage of Classroom Teachers Saying
That Problem is "Very Serious"

Problems	Percentage	
	1970	1971
1. The financial position of teachers.	54	55
2. The poverty of students and their surroundings.	45	49
3. Shortage of teachers with a "vocation for teaching."	34	29
4. Lack of teaching material.	34	43
5. Lack of cooperation from parents.	27	32
6. Too many students in class.	26	39
7. The efficiency of the Ministry of Education.	22	27
8. The method of assigning teachers to schools.	21	35
9. The guides and workbooks do not arrive on time.	14	29
10. Administration within the schools.	11	14
11. Lack of supervision.	10	9
12. Technical failures in the reception of the teleclasses.	8	15
13. Student behavior.	-	9

Source: Television and Educational Reform in El Salvador. Report on the Third Year of Research. Table 28.

that preoccupied them but rather the threat that, because of their scant schooling, all jobs would become increasingly difficult for them to obtain.

The parents' personal interest in education seemed to carry over to their aspirations for their sons' education. However, their aspirations for the children tended to be a little lower than those of the children themselves. The parents tended to see an ability to obtain a steady, well-paying job as the primary justification for advanced education. No doubt related to this practicality of the parents' aspirations for their sons was the fact that a much higher proportion of parents (36%) aspired for their sons to finish the vocational education of Carrera Corta than did the sons themselves (14%).

More than 80% of the parents surveyed had visited their sons' schools at least once during the school year. Their prime reason, in most instances, had been to pay tuition, although nearly 70% said they had also had the opportunity to discuss their sons' progress with one or more teachers. Despite this high rate of school visitation among parents, 55% of the parent sample could not remember ever having heard or read about the Salvadoran Educational Reform Program. This finding was especially remarkable in light of the fact that the Reform had been in effect for more than a year and had received extensive national publicity prior to the study of parental attitudes. Analysis revealed, however, that urbanization was a key factor in parents' knowledge of the Reform. Seventy-four percent of all San Salvador respondents had heard of the Reform, while in the rural sector less than one parent in five had heard of it.

Subsequent questions revealed that most parents held highly positive attitudes toward televised instruction, even though many did not know that such instruction was part of a comprehensive reform program. This finding seems to bode well for future expansion of ITV in El Salvador. Yet at the same time educational planners will have to keep in mind the primary motivation behind parents' wish for more education for their sons. They view education as a path to prestige and occupational security. If future training programs, as proposed in the Educational Reform, are not seen by parents and students as providing this same promise, then such programs may meet with little enthusiasm from both students and their parents.

VIII. THE FUTURE OF ITV IN EL SALVADOR

In November of 1971, the first pilot group of students to complete a full three years of study under the Educational Reform graduated from El Salvador's Third Cycle of Basic Education. In 1972, the first cohort of Third Cycle students graduated after studying for three years under a tested system-wide program of ITV. Their graduation will mark the growth of Third Cycle ITV to full maturity.

Also 1972, the fourth year of ITV/Reform in El Salvador, brought the most comprehensive evaluation of the new educational system yet made. In addition to their yearly report, the Stanford team of evaluators together with Salvadoran researchers, are compiling an overall summary report on all four years of ITV in El Salvador. Hopefully, this report will detail answers to many questions which have been left unanswered in this interim report. The final report should be available in mid-1973.

Salvador is concentrating this year on the qualitative improvement of ITV programming and the use of behavioral objectives in Third Cycle classrooms. By the end of 1972 when an additional ITV studio was ready for use and new ITV transmitters were put into operation, Salvadoran educators gained opportunities for the expansion of ITV into new areas. At this point, Salvadoran leaders are planning the following projects:

(1) Extension of ITV downward into the fourth, fifth and sixth grades of primary school.

(2) Expanded use of ITV in teacher training and retraining.

(3) Use of ITV in programs of adult education and extension work.

In line with past practice, Salvadoran leaders are not rashly rushing to expand ITV. Rather, they are carefully and systematically studying the best means for implementing the new projects to insure that they will be of the greatest benefit to their countrymen.

IX. THE EL SALVADOR EXPERIENCE AND ITV ELSEWHERE IN THE WORLD

It may be useful to say briefly how the El Salvador project has developed differently from other major ITV projects. There have been three other such major projects in developing countries -- in Colombia, American Samoa, and Niger -- all of which started in 1964, and all of which use ITV, as Salvador does, to teach the core of the curriculum. Colombia is by far the largest of these, with an estimated 400,000 students receiving some televised instruction. Samoa has about 8,100 students in grades one through 12; the entire curriculum of these 12 grades has up to this year been taught in part by television. Niger is the smallest of the projects. It has never expanded beyond 20 classrooms -- about 800 students -- in each of the first four grades. El Salvador is thus of a medium size, compared to these others. In four years it has grown from a mere 2,000 students in one grade to over 40,000 in three grades.

In an important respect, the ITV project in El Salvador is unlike those in the other three nations. Salvadoran ITV has been created and operated almost wholly by Salvadorans. In the early years of the Colombia project, Peace Corps volunteers shared major responsibility for making the programs and deciding the content they should carry. In American Samoa, until recently, almost all the television teachers, the producers, the engineers, and the directors of the television system have been experienced persons imported from the American mainland.

Niger began with the first grade, remade the programs after trying them in a few classes, then expanded to 20 classrooms and moved up one

grade at a time. Colombia began with two subjects a week for each of the first five grades and added to those very slowly. El Salvador, as we have seen, began with the junior high school grades; tried out the programs for the seventh grade in 32 pilot classrooms; then expanded in the second year to as many seventh grade classrooms as it could reach; tried the eighth grade programs on pilot classrooms, and so on, moving up one grade a year. Samoa, on the other hand, began teaching eight grades by television in the first year and added the four high school grades in the second year. One result of this was that the production staff was forced to make a tremendous number of programs with very little opportunity to try them out. By the third year, the Samoan producers and teleteachers were responsible for more than 180 live programs a week, and up until 1971 were producing 6,000 live programs a year.

Of all these projects, El Salvador has had the most success revising its national curriculum and has paid the most attention to retraining its teachers before putting ITV into the classrooms. Samoa was too busy getting started on its mammoth production responsibility to revise the curriculum extensively in advance. Rather than teachers, Niger used monitors, who had only a little training before they went into the classroom, although they were carefully selected and are reported to have done very well. Colombia had the assistance of Peace Corps volunteers as utilization advisers to the classroom teachers and also broadcast some in-service courses for teachers on television. But the policy of El Salvador in providing nine months of retraining for every Third Cycle teacher who was going into a television classroom remains somewhat of a phenomenon among ITV projects.

Of these four projects, Samoa has gone farthest in building a "national" system, although this is easier in its case because the entire population of the islands is only 28,000, and the primary and secondary school population is only a little over 8,000. Niger was intended to have a national system, but up to this time (8 years) has not expanded beyond its 20 classrooms and four grades. Colombia has made long strides in covering its very large area, but is still far from reaching all its schools or offering all its curriculum by ITV. El Salvador, favored as it is by a compact, densely populated area, is well on the way, in 1973, to delivering ITV to every part of the country and, within a few years, should be serving the entire national registration of the Third Cycle of Basic Education, and much of the Second Cycle (fourth, fifth, sixth grades). Ultimately, it may find itself serving as many students as Colombia.

X. SOME TENTATIVE CONCLUSIONS FROM THE EL SALVADOR EXPERIENCE

It may be presumptuous to write a case report so early in the history of a project, and unrealistic to try to present even tentative conclusions at this time. Yet the important and carefully studied El Salvador project is clearly of interest to other countries planning educational reform built around new technology. It seems justifiable then to draw on the almost four years of experience with ITV in El Salvador, to suggest what kinds of conclusions seem to be coming out of that experience, so that they may be shared for use elsewhere.

A. The Importance of National Initiative and Strong Leadership

In contrast to many other nations which have relied upon foreign models and foreign advisers to institute instructional television projects, El Salvador drew heavily upon its own resources and insisted upon strong national control from the outset. The energy and sense of purpose, which characterized the ETV Commission under Walter Beneke, were carried through in the establishment of the ITV Division within the formal framework of the Ministry of Education. Beneke insisted that Salvadorans assume responsibility for all phases of the Educational Reform, including television. Accordingly, Ministry of Education officials were justly credited with the project's successes but also held strictly accountable for its shortcomings.

Whether the Reform in El Salvador would have come to fruition without the strong leadership of Minister Beneke can, of course, not be proved; clearly without such leadership the Reform would have come later and less effectively.

The role filled by Minister Beneke corresponds to that of Governor Rex Lee in American Samoa. The fact that there was no similar high-level support for ITV in Niger has been one reason why the program there has been unable to expand beyond a pilot project.

B. Problems of Change

The importance of strong leadership and high-level support, however, illuminates the general problem of making fundamental changes in organizations as resistant to change as a national school system and a ministry of education. It is undoubtedly true that the introduction of dramatic technology like television does have a catalytic effect on such change, but it does so by pointing out the need for change. If one is going to spend so much to deliver teaching by television, it makes sense to revise the curriculum so that what goes out on television reflects the most modern knowledge and the most effective patterns of teaching. If one is going to put television and a new curriculum into the classroom, obviously the classroom teacher has to learn both new content and a new teaching role. Ergo, some retraining is required: new curricula, new methods, call for new and improved classroom materials both for teachers and students. If such a far-reaching and expensive change is being undertaken, it makes good sense to provide continuing evaluation of it. And so forth.

But merely making sense does not bring about these major changes. That has seemed to require, wherever it has occurred in these large projects, a strong and determined hand at the top of the administrative structure. Catalysis of the kind being talked about usually occurs through forceful

administration. This, in turn, often creates resentment in people who feel that change is being forced on them. Some of this was clearly seen in Samoa, and without attempting to judge completely the reasons for the El Salvador teacher strike of 1971, we can assume that resentment toward the policies and actions of top leadership in the Ministry must have played a part in it, along with the strongly voiced dissatisfactions over financial matters.

C. Problems of Bureaucratic Integration

Most broad changes require officials in ministries and school systems to change their roles and accept procedures and policies they themselves have not made. In some cases these changes can be integrated into the system more comfortably than in others. For example, in El Salvador the new Third Cycle curriculum was made and accepted without great trouble. Evaluation has been accepted, although not integrated so fully as it needs to be into the Salvador Ministry itself. The closing of many private and semi-official teacher training schools caused resentment, although the effect on teacher unemployment and the generally high valuation of the centralized teacher training at San Andres have gone far toward gaining acceptance and integration for those changes. Even so, the operators of the former teacher training schools and graduates of the Normal Superior, who feel their elite status has deteriorated, remain unaccepting.

Perhaps the best example of the difficulty of integrating new roles and policies into a system is what happened in the case of the element of the Reform which has thus far been least successful -- the transformation of the supervisor-inspector role into that of the supervisor-counselor.

This was a very unfamiliar role in El Salvador. The former supervisors opposed it because they felt a lost authority and prestige when they were asked to be advisers rather than judges. The Ministry bureaucracy tended to oppose it because they, at first, did not have direct control over it; an apparent mistake was made in putting the new supervisor corps into the Division of Educational Television rather than the departments of the Ministry that were directly in charge of the schools and the teachers. This mistake has been rectified, but the role still remains unfamiliar; it requires more skill and more special training than were required of supervisor-inspectors, and the full story of the slow development of this component of reform deserves to be studied and told in more detail than it can be here.

D. The Problem of National Integration

The experience of El Salvador tends to underline some advantages in trying to develop and use the new technology with local people doing it, rather than bringing in an outside team for the purpose, as was done in Niger and American Samoa. After three years, ITV is more firmly established in El Salvador, the local component of experienced television people is larger, and the outlook for continuing and expanding the system is rather better than in countries which have relied mainly on outside experts for the actual production and teleteaching. On the other hand, this experience has also identified some disadvantages of depending so largely on local but inexperienced production talent.

E. The Problem of Producing High Quality Television

The ITV programs of Niger, which were produced by a talented French team on a leisurely schedule of development and tryout, have been widely admired. The programs of Samoa, which were also made by an experienced team from outside, have been perhaps less admired because of the great pressure under which they were made -- the teams being responsible for so many programs, at so many levels, in so many subjects. One of the great worries of the leaders of the El Salvador project, and one of the great complaints of the teachers, has been the uneven quality of the television programs. The lesson that seems to emerge from this experience is that if a country wants to "do it itself" (which has advantages over the long term), it must allow sufficient time before the project goes on the air to train production teams, let them gain experience, and test and remake as many programs as possible. For this kind of procedure, of course, more nearly adequate studio facilities must be provided than the single studio El Salvador was able to use through the first three years of the program.

F. The "System" Concept

All of El Salvador's experience appears to support the idea that the introduction of instructional television or any other major technology is best made as part of a total system change, and, indeed, best considered in terms of broad system needs. ITV for core teaching cannot simply be added on. It requires other elements of change in order to be truly effective. And if in the midst of these related changes its individual effect is submerged, the observers in El Salvador feel that is good rather than bad.

G. The Rate of Development

The experience of El Salvador suggests that beginning one grade at a time avoids many problems that a project gets into by introducing ITV for core teaching into a number of grades simultaneously. For example, there is no problem about having to change the level of instruction as the experience with television and the new curriculum moves upward through the school system. (In Samoa, the level at which the third year students began would necessarily be different if they previously had two years or one year or no years of the new system.) If it is also possible to try out the television for a year in a few pilot classrooms before expanding it to the entire school system, this also has an advantage, as Niger seems to have demonstrated. At the end of the first year, El Salvador was also able to revise and improve many seventh grade programs on the basis of experience. But revising old programs and producing new ones at the same time require additional production staff and facilities.

H. The Problem of Delays

El Salvador's experience supports that of earlier projects: that any major ITV project never moves quite so fast as expected, and even careful plans are often disrupted by unexpected delays. Some of the more evident reasons why the El Salvador project fell behind schedule have been mentioned. One of them was the long delay (related to the incidents with Honduras and to political situations both in the United States and in El Salvador) in getting the loan through to supply the new studio facilities. Furthermore,

El Salvador, like all the other projects, has found that it takes more time than expected to build an adequate new organization, and integrate it into the existing organization, to do the new and unfamiliar tasks.

It has been rather remarkable that ITV in El Salvador has been able to keep its air schedule, despite the delays. However, delays in providing adequate facilities and shortages of experienced persons so that crews had to learn by doing, have had their effect on the quality of programs and on the opportunity for production personnel to revise and improve broadcasts and to make full use of the feedback they were getting from classrooms.

I. ITV and Classroom Teachers

As we have pointed out, the attitudes of Salvadoran teachers have remained remarkably friendly toward ITV and the Reform generally. The teachers who have been least favorable are those who feel that their status has been reduced; in El Salvador these seem to be limited mostly to the "elite corps" trained in the highest school of pedagogy. However, it may well be that a period of change like this exacerbates other problems of relationship with teachers -- for example, their feelings of being underpaid and their resentment of what they may feel are high-handed actions by the leadership. There is little doubt that the retraining given teachers in El Salvador before they went into classroom teaching with television (except in the case of some teachers who felt they were already highly trained) did help to build confidence in and strengthen favorable attitudes toward the new kind of teaching. And it is clear that, whatever the initial

attitudes toward ITV itself, the time of its introduction requires special care on the part of leadership to introduce teachers to their new roles and to handle other dissatisfactions which may not be directly connected with the innovations but may get in the way of educational change in general.

J. Problems of Expense

There is a good reason to believe that the educational reform in El Salvador has been effective in raising the amount of learning and modernizing many of the practices of teaching. Television's cost has been somewhat less than many people anticipated. It has represented less than five percent of the Ministry's annual budget, and less than fifteen percent of the normal per student cost in the Third Cycle operating without television. The present cost of ITV per student hour is between eight and nine cents, and will drop perhaps to four cents as use of television expands.

However, ITV used in existing classrooms is clearly an add-on cost, and can hardly be anything but additional as long as it is used in school without changing the student-teacher ratio.

It is evident also that the introduction of ITV requires the accumulation of a large amount of capital, which is rarely available in a developing country without aid from outside. None of the four major projects we have mentioned, including El Salvador, has been able to get started without substantial grants and/or loans and/or technical assistance from a donor country or organization. In Niger, it was France; in Colombia and Samoa, the United States; in El Salvador, the United States, the World Bank,

and other contributing sources. To the extent that these funds are borrowed, they must be repaid. In any case, at the end of outside support, the country that has installed the new equipment and the new system must assume operating and replacement costs.

Although as we have seen, ITV in the Third Cycle of Basic Education may well have been cost effective, the people in El Salvador who have been active in the Reform are inclined to defend the expenditures on television in terms other than present cost-effectiveness. They point out, for example, that without the "catalytic" effect of introducing ITV they would very likely have been unable to make the other changes or raise the money required for the Reform -- at least at the present time. This is a benefit it is hardly possible to cost.

In addition, both the Salvadorans and the economist who has made the chief cost study of the Educational Reform point out that -- if more teacher retraining is judged necessary -- then, by introducing ITV, the amount of necessary training can be cut by as much as 50 percent. That is to say, the television can make such a large contribution to teaching the new subject matter that the classroom teacher does not have to spend so much time studying about it. Furthermore, it is pointed out that two uses of ITV, one presently under way, the other planned, do represent opportunities to save substantially by the use of television, over the cost of meeting the same needs by more conventional methods. These are the preparation of primary school teachers to handle the new curriculum via Saturday morning television broadcasts, and the planned offering of adult education opportunities by

television. These uses would cost substantially less than bringing primary teachers into a training school or offering adult learning opportunities through face-to-face classes throughout the country. Providing such programs via ITV may thus afford real absolute savings to the Salvadoran government, though again the savings would have to be measured against relative effectiveness.

The Salvador experience indicates, therefore, that not all the benefits of ITV are costable, and that by using ITV's capability in part for tasks other than teaching in classrooms, it may be possible to achieve substantial savings to balance against the add-on costs of core teaching.

Appendix A

CHRONOLOGY OF EDUCATIONAL REFORM IN EL SALVADOR

1960 -- Possibility of introducing ITV is discussed in El Salvador newspapers.

1962 -- Survey by Japan Broadcasting Corporation engineers is arranged by Walter Beneke, Salvadoran Ambassador to Japan. Survey team recommends a national system of ITV.

1963 -- President Rivera establishes an Educational Television Commission to recommend a national plan for ITV by 1964, but progress drags. Some young Salvadorans are sent to Japan for a year of engineering training, but they have no ITV jobs when they return.

1964 -- Department of Educational Television is created within Ministry of Education, but for two years this Department has no leader and no budget.

1965 -- Educational Television Commission is revitalized when Lic. Beneke returns from ambassadorial post in Japan, and is appointed chairman of the Commission. Key new appointments are made, and the Commission begins to hold weekly meetings. Commission studies experience of other countries with ITV, and makes statistical analysis of educational system.

1966 -- Commission decides that ITV should be introduced first into the seventh, eighth, and ninth grades (Plan Basico), and recommends that it be organized as an autonomous institution reporting directly to the President, rather than within Ministry of Education.

-- UNESCO team trains first ITV staff members, and helps Commission broaden concept of requirements of successful ITV.

1967 -- Small program of experimental production is begun using rented facilities of commercial TV station.

-- Aid in financing ITV is sought from Mexico, Guatemala, Japan, USAID, UNESCO, World Bank. World Bank makes another feasibility study, with generally favorable results.

(Spring) -- President Fidel Sánchez Hernández hears President Lyndon B. Johnson speak at Punta del Este of possibility of financing

1967 (continued) pilot project in ITV somewhere in Latin America, and puts El Salvador's case before U.S. officials. AID sponsors a survey team recruited by National Association of Educational Broadcasters, which recommends a favorable response to El Salvador's proposal. The team, however, pushes for a large project at primary school level. Salvadorans resist this latter recommendation, and eventually prevail.

(July) -- Lic. Beneke is named Minister of Education, and opposition to placing ITV in the Ministry evaporates.

(Summer) -- Formal proposal is submitted by Salvadoran government to USAID.

1968

(Spring) -- Formal project agreement is signed between El Salvador and USAID. Latter agrees to contribute $653,000 to start-up costs of project -- largely studio and transmission equipment, graphic arts equipment and printing machinery, and 100 television receivers.

-- A U.S. loan of $1.9 million is planned to back up this AID contribution, and make it possible for El Salvador to construct and provide new studio and transmission facilities, and receivers to cover almost entire country.

-- Minister Beneke closes most of the normal schools, which had been over-producing primary teachers, and establishes a new centralized normal school at abandoned campus in San Andres.

(September) -- Temporary studio is equipped in building at San Andres.

-- ITV staff (total of 20 in spring of 1968, 200 at end of 1971) is recruited and inservice training begun.

-- USAID supplies first group of advisers in production, graphics, film, curricular revision, printing, utilization, evaluation.

(November) -- Tentative revision of seventh grade curriculum is completed and given to ITV production teams and instructors at San Andres.

-- Production teams have three months to make classroom materials, teachers guides, and TV programs.

-- Normal school faculty have three months in which to retrain 100 teachers for pilot ITV classrooms, and 12 candidates for positions as utilization supervisors.

1969

(February) -- New curriculum and ITV begins in 32 pilot 7th grade classes.

-- Nine months retraining program begins for 250 Plan Basico teachers.

(July) -- War breaks out between El Salvador and Honduras. USAID funds to both countries frozen.

1970 -- AID freeze on funds to El Salvador is lifted.

(February) -- New curriculum is installed in all 7th grade classes with ITV in 219 of 400 classrooms.

-- 32 pilot 8th grade classes begin with new curriculum and ITV programs.

-- Second group of 250 Plan Basico teachers begin 9 months retraining program.

(October) -- Salvadoran National Assembly gives final authorization for loan from AID to finance new studio and transmission facilities.

1971

(February) -- Ministry of Education is reorganized with Plan Basico revamped and renamed Third Cycle of Basic Education.

-- System of oriented promotion is introduced whereby almost all students will pass. Testing and evaluation are modernized.

-- Tuition is eliminated for the Third Cycle of Basic Education opening up 7th grade to all qualified graduates of Second Cycle. Results in overcrowding of classroom and heavy teaching loads.

-- New curriculum and ITV extended as widely as possible in 7th and 8th grades.

-- 32 9th grade classes begin using ITV.

-- Retraining program begins for third group of 200 Third Cycle teachers.

-- New curriculum introduced in first six grades. Primary teachers participate in week-long crash retraining program via ITV. Thereafter retraining programs continue via ITV on Saturday mornings.

1971
(continued) -- Six month retraining program begins for school directors.

(July) -- Teachers strike for higher pay and/or reduction in workloads. Most schools greatly disorganized. ITV broadcasts previously taped lessons to 7th and 8th grade classes which remain in session. 9th grade ITV goes off the air for the remainder of the year.

(September) -- Teachers strike settled but many schools still disorganized on account of teacher transfers.

-- Minister of Education Beneke resigns and is named Minister of Foreign Affairs.

1972
(January-
February) -- ITV programs revised to reflect new printed curriculum materials and the use of behavioral objectives.

(July) -- New Minister of Education, Sr. Rogelio Sanchez, appointed.

-- New Five-Year Plan provides for introduction of television into Second Cycle, and for its extensive use in adult education and retraining teachers.

-- ITV personnel receive extensive retraining on the use of behavioral objectives, formative evaluation and qualitative aspects of improving programming -- under auspices of Stanford research team and Ministry officials.

Appendix B

Reports published by the Institute for Communication Research and the Academy for Educational Development for the United States Agency for International Development on the El Salvador Educational Reform and Television Project:

1. First Meeting of the Advisory Committee. Administrative Report No. 1. October, 1968.*

2. Design of the Study. Research Report No. 1. December, 1968.*

3. The Use of Television in the El Salvador Program of Educational Reform: Differences Between This Project and Some Others. Administrative Report No. 2. April, 1969.

4. The El Salvador Educational Reform: Some Effects of the First Teacher Retraining Course. Research Report No. 2. July, 1969. By Emile G. McAnany, Generoso Gil, Jr., Donald F. Roberts.*

5. Measuring Educational Development Through Classroom Interaction. Research Memorandum No. 1. September, 1969. By Wilbur Schramm.*

6. Parents Talk About ETV in El Salvador. Research Memorandum No. 2. October, 1969. By Luis F. Valero Iglesias, Emile G. McAnany.*

7. "Feedback" for Instructional Television. Research Memorandum No. 3. December, 1969. By Wilbur Schramm.

8. Research and Evaluation in the El Salvador Project of Educational Reform: What is Being Tested and Why. Research Memorandum No. 4. January, 1970.*

9. Research and Evaluation in the El Salvador Project of Educational Reform: Some Preliminary Research Findings from the First School Year, 1969. Research Memorandum No. 5. February, 1970. By Emile G. McAnany.*

10. Television and Educational Reform in El Salvador: Summary Report of the First Year of Research. Research Report No. 3, May, 1970. By Wilbur Schramm, Emile G. McAnany, John K. Mayo, Robert C. Hornik.

11. Television and Educational Reform in El Salvador: Complete Report on the First Year of Research. Research Report No. 4. July, 1970. By Emile G. McAnany, Robert C. Hornik, John K. Mayo.

12. Teacher Observation in El Salvador. Research Report No. 5. January, 1971. By Judith A. Mayo.

13. Feedback on Student Learning for Instructional Television in El Salvador. Research Report No. 6. February, 1971. By Ana Maria Merino de Manzano, Robert C. Hornik, John K. Mayo.

* Out of print.

14. Television and Educational Reform in El Salvador: Complete Report on the Second Year of Research. Research Report No. 7. March, 1971. By Wilbur Schramm, John K. Mayo, Emile G. McAnany, Robert C. Hornik.

15. An Administrative History of El Salvador's Educational Reform. Research Report No. 8, November, 1971. By John K. Mayo, Judith A. Mayo.

16. Instructional Television in National Educational Reform. Research Report No. 9, December, 1972. By Wilbur Schramm.

17. Television and Educational Reform in El Salvador: Report on the Third Year of Research. Research Report No. 10, March, 1972. By Robert Hornik, Henry Ingle, John K. Mayo, Judith A. Mayo, Emile G. McAnany, Wilbur Schramm.

18. Educational Reform and Instructional Television in El Salvador: Costs, Benefits, and Payoffs. October, 1971. By Richard E. Speagle.

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10 North LaSalle Street
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Paris 7, France
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